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WHAT MOVES MAN?

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"In Gibeon the Lord appeared to Solomon in a dream by night: and God said, Ask what I shall give thee.

"And Solomon said, Thou hast shewed unto thy servant David my father great mercy, according as he walked before thee in truth, and in righteousness, and in uprightness of heart with thee; and thou hast kept for him this great kindness, that thou hast given him a son to sit on his throne, as it is this day.

"And now, O Lord my God, thou hast made thy servant king instead of David my father: and I am but a little child: I know not how to go out or come in.

"And thy servant is in the midst of thy people which thou hast chosen, a great people, that cannot be numbered nor counted for multitude.

"Give therefore thy servant an understanding heart to judge thy people, that I may discern between good and bad: for who is able to judge this thy so great a people?"

Is it little wonder the speech of the young king pleased the Lord?

Solomon's expressed concern was about the behavior of his subjects, and about the probable causative forces underlying their conduct. And well might he be interested in human behavior. Although he was the son of the king of a deeply religious people, Solomon barely missed being born out of wedlock. Solomon probably feared that some of his father's tendencies might be transmitted by heredity to him, and his concern might have been about some of his own urges as well as about the activities of his subjects. Whatever the reasons for Solomon's profound interest in the meaning of human conduct, he had evidently come to the throne fully determined to find out all he could about that phenomenon more interesting to a mortal than all other things—the behavior of his fellow-creature.

In the 3000 years that have come and gone since Solomon had his dream at Gibeon, mankind has been instructed by his pithy proverbs. No other mortal has looked so deeply and so understandingly into man's mind and heart, and has recorded so concisely and so lucidly what he saw there.

What is meant by behavior? Is conduct merely another statement of the same phenomenon? What underlies that feature of a human being's life that we speak of as behavior and conduct?

The living thing is responsive. It reacts to stimuli that reach it. The responsiveness of the living thing is its behavior. If the responsiveness be chiefly the manifestation of instinctive urge, I think the word "behavior" may define it. But if the living thing seems to be purposely directing the response, then the word "conduct" may more properly be used. All things that are alive, animal and vegetable, are in a condition of unstable equilibrium. They are in a state of constant change. They take in food and they give off waste. All living things, I think, are obliged to do those two things. To live, individually, is a primal urge. To live, racially, through descendants, is another instinctive urge. To live, to beget: those two innate desires urge the living thing to be unceasing in its efforts to survive and to perpetuate itself through progeny. Most of the activities of the most intelligent and the most civilized woman and man are but

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elaborations of those blind instinctive urges. Free expression of all behavior-tendencies would make any degree of civilization impossible. Repression of all activities would result in mutism and general stagnation. The conflict betwixt expression and repression is always on, and out of the conflict come dreams and nightmares and many nervous conditions.

Why does the thing behave? You remember that a cynical scientist remarked that in contemplating his possible ancestral origin man has to take his choice between mud and a monkey. If evolution is a fact in substantiation of a theory, then man has slowly evolved throughout millions and millions of years from a tiny, scarcely visible cell into those upright beings that think so approvingly of themselves as to boast that God looks like them. In his slow ascent up from the salt water and the slime and the swamp, man's form has changed enormously; it had to change in order that he might be better able to feed and to defend himself. Change in form brought with it change in behavior. Each must have affected the other: the more complex structure made possible more elaborate behavior; the constantly enlarging behavior brought into existence a more complicated anatomical mechanism.

I doubt not that most of us believe that we understand our own behavior—its origin and its methods and its significance. But I am inclined to the opinion that most mortals have no more accurate knowledge of their conduct than they have of the structure of their bodies. Most people probably know as little about conduct, even their own, as about anatomy. And the medical student assures us that the study of anatomy is unending.

Although behavior may be difficult to understand, no one can doubt its importance. I doubt, indeed, if we are vitally interested in any other phenomenon. The printing presses, the radios, the communication facilities and most human tongues are kept busy in efforts to satisfy our innate curiosity about the doings of each other. But our concern about human conduct is often superficial, prejudiced, emotional, and subjective, rather than intellectual and critical. We are pleased or displeased by the behavior of another. We usually have a "feeling" for or against another's conduct. We make no dispassionate attempt to understand it—its causes and its purposes. We are generally interested only in justifying our personal opinion of another's conduct. In our own opinion our personal conduct is approximately perfect.

I think of instinct, emotion, and intelligence, one or the other, as the provocative of most conduct. What is instinct? Perhaps instincts are the habits of ancestors transmitted by heredity to their descendants. If you accept that definition, you are able to understand how complex instincts are. More concisely stated, instincts are definable as inherited racial behavior. But instinct at work in the individual constitutes the faculty of behaving so as to produce certain results, without foresight of the results, and without having experienced training in the performance of the actions. I know of nothing in life quite so interesting as instinctive activity. Life is so filled with it, indeed, that we are generally not aware of its presence, even within ourselves.

The first intimations of the approach of autumn have set many of the birds, for instance, busy in migratory flight to the south. Probably all life, vegetable as well as animal, may instinctively sense the approach of the inertia of winter. The leaves change color, mature, die, and fall; and all vegetable growth is usually suspended during winter. The activities of most animals, including man, lessen during the cold season; and the apparent lethargy called hibernation brings certain animals into a condition so static as to simulate death.

Our personal egotism is so great that we are unwilling to believe that any of our own behavior is of instinctive origin. We reserve instinctive behavior for the lower animals. I doubt not that we mortals, even the most intelligent and most cultured individuals, are more richly endowed with instincts than any one of the lower animals.

Sucking in the new-born infant is instinctive, and so, later, is crying, smiling, walking, talking, playing and imitating. In the adult human, I consider instinctive certain fears, anger, rivalry and emulation; mating, curiosity, fighting, killing, acquisitiveness; constructiveness, perhaps; and sociability or gregariousness. Modesty may be, although I doubt it, of instinctive origin. It is more likely to be imitative and inculcated. Love,

in the biologic sense, is undoubtedly instinctive, and it constitutes, beyond a doubt, the mightiest urge known to man—stronger even than hate and fear. Love constitutes the primal biologic necessity, because it is intimately tied up with sexuality and with race-perpetuation. Jealousy and envy, complex states, difficult to understand, are probably instinctive. It is easy to understand that instinctive activity in our primordial ancestors tended to preserve the individual and to perpetuate the race. Mankind is still kept busy by those two activities.

I should like for us to understand clearly certain probable facts about instinct. Instinct is not virtuous. It is unmoral. It is not interested in right and wrong, justice and injustice, and it is without respect for public opinion and it is uninterested in conformity. Instinct probably does not feel shame or experience remorse. Instinct is physiological, rather than psychological, in origin. Instinct tends to express itself in movement and in action. It is a behavior-phenomenon. The primal instincts are probably not consciously concerned about purposeful ends. The instincts may be, indeed, without foreknowledge of the results of their activities. I think of the fundamental instinctive urges as innate yearnings, hungers, concerned only about their own gratification and nothing else. Instinct tends to release energy in the form of behavior, and thus to lessen tension and to bring comfort. The release is comforting to the individual, and the satisfaction experienced represents, perhaps, the personal conclusion of the instinctive urge. Mother-love holds the human mother in the burning building in an attempt to save her babe. But the same instinct keeps the mother-bear with her cubs, however great the danger to her life may be. The human mother and the bear mother are each tethered by the chain of instinct. They may be as helpless as their young.

No instinct is high or low. It is. And pure instinctive behavior merely is, just as energy is, and little more can be said of it. I think of it as being dreadfully frank and honest and shameless and unapologetic and democratic. There is certainly nothing snobbish about instinct, not even in a snob. Some other attribute gives him his snobbishness.

The influence and the might of instinct may be likened in the animate world to the majesty of gravity in the world of inorganic matter. No one assigns to gravity either virtues or vices. Gravity represents the universal presence of mere force in the material world. Instinct may be as omnipresent and as potent in the domain of living things. If we cannot understand, we can, at least, recognize and identify instinct as it manifests itself both in the living objects around us and within ourselves. To protect self, to immortalize self through descendants, to obtain pleasure, to escape pain: those are the instinctive objectives of life. Those four purposes underlie most activity, human and otherwise.

May we not briefly consider another factor powerfully influencing behavior? I speak of the emotions or feelings. The higher development the animal reaches, the more emotional it may essentially be. It is not easy to think of a tadpole as becoming emotionally disturbed. But a thoroughbred horse or dog may experience emotional mood-swings that differ in quality and in quantity little from our own. I realize that a highly intellectual individual may conceal her or his emotion. But no normal mortal can prevent the presence within itself of emotional responses, even though their transmutation into observable behavior may be inhibited.

The attempt to define the emotions generally results only in the cataloguing of those that are most often observed and experienced. The things with which man is universally familiar are probably indefinable. We are all familiar with feelings, some of which we like and some of which we disapprove. The instincts and the emotions are akin. I find myself wondering if many of the emotions may not come into being because of conflicts betwixt certain instincts, or because the fulfilment of certain instinctive urges is interfered with.

The adolescent boy, in illustration, may be apparently altogether happy with his kites and marbles and guns and games and fishing and hunting and fighting with other boys, until the particular *she* appears, and the emotion that he believes to be the grand passion lays hold of him. Even though his parents may call it only canine love, the boy knows better, and he surrenders himself fully to the enjoyment of the pristine pleasure, despite the jibes of his untouched fellows and the disapproval of his parents. Although he may have grown up side by side with the lovely little hussy, her near-

ness never caused a flutter of his cardiac muscles until yesterday. Then the normal instinctive mode of his daily behavior became enormously disturbed. His instinctive life became displaced by an emotional life.

Neighbors, two of them or many more, may have lived in propinquity and pleasantly together throughout the years. Their instinctive relations were calm and cordial. But a row in the church arose. Some of the neighbors became emotionally disturbed. They discovered in each other qualities of the basest sort, and they vocalized their psychological discoveries to all who would lend their ears. Another congregation was organized, and the church went into debt for the handsome new edifice.

Lest we might be inclined to doubt the might of the emotions in formulating conduct, even in the most intellectual, let us read fiction and poetry; for in those fields of literature men and women continue the struggle to define the indefinable—our deeper feelings. Most recorded history is, I little doubt, largely a record of the wreckage left by man's emotional mood-swings. David, in his last words with his son Solomon, left careful orders for the deaths of several of his enemies. Solomon not only carried out his father's fatal wishes, but he promptly busied himself in scattering death amongst his own enemies. Old Andrew Jackson, dying of tuberculosis, when reminded that in view of his great achievements he could look forward without regret to the call of the Boatman, voiced in an almost inaudible whisper his sorrow at not having shot Henry Clay and not having hanged John C. Calhoun The manifestations of their bitter hatreds placed and sustained in American history Andrew Jackson and John Randolph, Andrew Johnson and Thaddeus Stevens, and many others. I have often wondered if Abraham Lincoln was not driven from home by a termagant wife, and if American history might not be radically different if his home-life had been happy. Most great works, perhaps, are carried out by the unhappy in substitution for activities they would preferably engage in. Happiness brings contentment, and out of such a state large, purposeful labors do not arise. The world's great have probably lived unhappy and generally tragic lives.

At the beginning of every political campaign the American people are urged to replace their intelligence by their emotions; to feel and not to think; to hate and to hope, rather than to analyse and to reason. In consequence, every political campaign becomes an emotional orgy. Warfare represents, of course, the release of the instinct to dominate by killing that is innate in all of us. Many of man's primal instincts remain latent or under conscious control until unleashed by an emotional upheaval.

I would not have you believe that I think all of our emotions are base and that none of them is elevating. Life in the distracted world of today would be even more intolerable if we were robbed of hope and joy and love and sympathy and altruism and of all those higher aspirations that cause us to lift up our eyes to the hills eternal.

I think of our emotions as the atmosphere, the temperature, the tone of ourselves in which we live our lives. Our emotions affect our bodies and many of their functions, as well as our feelings of comfort and of discomfort. There are those who would tell you that we are amused because we laugh; that we become frightened because we run away; that we become angry because we swear and fight; and that we feel depressed and melancholy because we make our faces long, neglect our physical appearance, and talk plaintively and sorrowfully. Such a school of philosophy will tell you that the object or event which evokes the emotion does so by first causing changes in the functionings of the organs of the body. The other emotional school, if I may so speak, will tell us that the bodily changes come after and because of the changes in the tone and in the quality of the feelings. You will do your own thinking about these profundities. I know too little about them to proffer advice or to offer instruction.

Without emotions our lives would be without feeling. If we were wholly intellectual, all our acts might be highly rational, but their performances could bring us neither joy nor sorrow. The emotions are likely to be less interested in achieving a goal than the instincts are. The emotional experience, profound though it may be, may be largely delimited to the individual. The instinctive urge is apt to involve an object outside of the individual. The boy may love the girl powerfully, but may succeed in keeping his passion to himself. He is experiencing an emotion. The hungry cat exhibits no such

restraint when the luckless mouse appears. There is instant and lightning-like movement. The mouse becomes cat. That is instinct at work.

I am not suggesting that all behavior of emotional origin should be suppressed. If we could not express our feelings through behavior—and there is no other way—we would be even worse off than we are. But hate is not likely to release commendable conduct, nor is wild joy apt to express itself rationally and constructively. We should—may I venture the opinion?—give heed to our motivations. And we should try to differentiate betwixt the good and the bad emotions. And we should, to be sure, when the situation calls for intellectual consideration rather than for emotionalism, try to submit the problem to our higher psychic levels, if we have such equipment, and if we can succeed in hoisting our problems so high.

The time of our departure draws near, and I have scarcely spoken of our intelligence as a possible source of any of our conduct. Do we think? Do we reason? Do we attempt analyses? Do we compare? Do we make inferences? Do we exercise judgment? Do we conclude? And in consequence of such activities do we formulate conduct? I wonder. The acquisition of facts may constitute knowledge, and the utilization of knowledge may represent wisdom. But no one is wise, and few are utterly foolish.

Most human behavior must constitute the result of at least three influences busily at work in all of us—instinct, emotion, intelligence. Instinct is by far the oldest of the three. We have been influenced by instinct for millions of years. Our emotions are younger; consequently they are more skittish and uncertain and much more likely to kick up their heels and to scamper away, not unlike a colt in a clover lot. Our intellects? Have we intellects? Our intelligence, if we possess it, has come last during the evolutionary process. It is still infantile, and we always expect not only too much of it, but the impossible of it. We must not expect too much of a mortal, either of self or of another. Disappointment and perhaps tragedy will result. We have probably set our civilization-standard above the reach of our capacity.

If those who are incapable of thinking were debarred from the effort, as children are shut out of industry, what might we suppose would happen? We undoubtedly, most of us, think we are thinking when we are only feeling. Usually, I fear, we think we have discovered a motive for the conduct after it has expressed itself. If the conduct is our own or that of our friends, we are likely to give a good reason for it; if the conduct be that of another, and especially that of an enemy, we assign a bad motivation to it. Psychiatrists call such exercises, I believe, rationalization. Assigning an intellectual reason for instinctive or emotional behavior probably constitutes rationalizing. All mortals engage in it freely, whether they ever heard of the term or not.

We probably have little intelligence. Were our conduct the product of it, we should be living in a quieter, a safer, a more difficult, and a much less interesting world. The influence of instinct and of emotion upon human behavior tends to make life much more irrational and unstable and undependable and noisy and violent and dangerous and destructive. But we love scandal and prize-fights and revivals and gossip and tragedy and the New Deal and Rugged Individualism and warfare and peace treaties and reconstruction in order that there may be another war.

What are we going to do about ourselves? We mortals have not yet learned the simple but necessary art of how to live with one another. We are, of course, not only the cruelest of all creatures, but we are probably the only animals left that are cruel for the mere pleasure of enjoying cruelty. We are probably instinctively predatory and homicidal. We fear no other animal as we fear our fellow-mortal. For that reason we have little democracy. We are afraid of one another, afraid for people to have charge of their own government. It is for that reason that democracy and Christianity have never had a trial. We would be making a little progress if we should try to realize that instinctive savagery may masquerade as patriotism, and that a war for the sake of democracy may be a concealed drive for conquest. We blunder irretrievably when we mistake a scoundrel for a patriot. We are anxious for others to be Christians, but not to be Christians ourselves. We reason unsoundly when we deny our enemies the possession of any of our virtues and ourselves

any of their vices. We are all, of course, infinitely more alike than unlike. There are those, indeed, who believe that our individual enemies are those most like ourselves. Unwittingly we may project into them our most grievous faults; and then, of course, we hate them.

We are little inclined to submit ourselves and our own problems to our intellects for examination and for final adjudication. To think and to reason and to form valid opinions require labor and patience and fortitude and courage. Why evolve an opinion if one would not stand by it? Only the individual can think. Only the individual can develop an opinion. Only the individual can be interested in the search after truth. Only the individual can be honest. Only the individual can have courage. Only the individual can seek to know God. The mass can do none of those things. The mass, as such, can feel the influence only of the instinctive urges and of the emotional perturbations. The mass can destroy; it cannot create. The leader, demigod or despot, can make successful appeal only to the feelings of the group. He would not have them to think. When the members of the group begin to think the leader is already lost. The members of an intellectual group may act concordantly and intelligently, but their activities express their thinking and not their emotions. There is little interest in intellectual honesty. To me the term means honesty with self.

I would not have you to think disparagingly of man's instincts nor of his emotions. Man's intellect may be a sort of implantation—don't we expect the schools to create intelligence in our children?—but our instincts and our feelings are as old as the hills. And we must not be embarrassed by the primitive suggestions they often give us, for they were taking care of our ancestors when existence was hazardous and when ethics and religion were unknown. Our instincts have not been to Sunday School, and our emotions were too old even for the Bible Class when they got to Sunday School for the first time.

We must learn to get along better with one another as we are, for there is no valid evidence that we have undergone much improvement in our morals since the first line of history was written. We can much more profitably engage in trying honestly to know ourselves as we are than in efforts to improve ourselves by findings in others reasons for our condemnation of them. If we had sense enough and honesty enough to enable us to appreciate the importance of the instincts and the emotions in all of us, high and low, big and little, in individuals and in groups, then at the meetings of the international conferences such human attributes would be dealt with. But instead, at the post-war assemblages, navies and guns and high-sounding, hypocritical philosophy are considered. The great conferences always take care that the basic causes of discord are never allowed to be brought up for discussion. What are those causes? Crowding and threatened starvation. Peace and safety will not be found amongst people in such condition. Both our own vast country and most of the far-flung British Empire are unpopulated. The English-speaking people are chiefly to blame for man's present predicament.

The educational institutions insist that it is their high duty to fit youth for the exercise of leadership. Is it? If all should be made fit for leaders, whom would the leaders lead? Our schools should devote themselves to the attempt to make possible the full development of the nation's youth as individuals. Let them be prepared to live their own lives, with each as his own leader. Most of the world's tragedies have been caused by leaders—of the wrong sort. The quality of our own national life has been irreparably damaged within recent years by the abdication of the individual.

Man as an independent, thinking, resourceful, courageous entity, has almost disappeared. His retirement from our national life has been enormously expedited since the World War. Man is now, here in the very home of democracy, being thought of not as a particle of the Divine, but as an infinitesimal portion of many enormous groups—civic, political, industrial, educational, and religious. The abdication of the individual is almost complete, even amongst us. Democracy is only mechanically a form of government. Democracy is fundamentally a state of mind. It represents man's belief that if he so wills no thing and no person and no power can intervene as an obstruction between him and his Creator. But he who would have personal liberty must be

forever fighting for it; for man hates for his fellow to be free. Consequently the individual, or the group of individuals, who give up their democracy, give up also their God.

A QUARTER-CENTURY OF HEALTH PROGRESS IN NORTH CAROLINA

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CHAPEL HILL

In the preparation of this paper I have consulted some of the state's best authorities on this subject, including the present and all living past presidents of our State Medical Society and, with a few exceptions, at least one member of each county medical society. This group included general and special medical practitioners, urologists, radiologists, pediatricians, general and special surgeons, public health physicians, Negro physicians, dentists, nurses, hospital administrators, pharmacists, and field, research, and teaching workers in their various lines. None of these is responsible for the faults and limitations of this paper; each contributed valuable thoughts.

No attempt is made to give a comprehensive array of statistics, and my own limited experience prevents the presentation of personal medical reminiscences covering the period. What follows is an informal discussion of some of the factors which these competent observers feel have contributed most to the decrease in illness and postponement of death during the last quarter-century.

The year 1914 saw the beginning of a World War; 1939 saw the rapid development of events that may lead us into another major catastrophe, unless we have developed more immunity from infectious propaganda and contagious stampedes than has so far become apparent. Doctors at this time are in a strategic position to appreciate and emphasize the necessity of steering our national enthusiasms into healthful pursuits of peace. Our defense mechanisms, individual and national, must be built up and kept strong enough to leave a margin of safety even in emergencies; our chief fight must continue to be against suffering, ill health and death of body, mind and spirit.

A brief glance at some pertinent vital statistics may point to some of the specific trends in morbidity and mortality during the quarter-century. Each of the items in the following table is worthy of careful individual analysis.

Comparison of Illness and Death Rates in North Carolina For 1914 and 1939

(Figures in parentheses are rates per 100,000 population, except those for infant and maternal mortality, which are based on 1,000 live births.)

	Deaths				Cases			
	1914		1939*		1918[1]		1939*	
Tuberculosis	3,287	(139.3)	1,806	(51.2)	3,514	(148.9)	2,365	(67.0)
Typhoid	845	(35.8)	46	(1.3)	3,472	(147.2)	353	(10.0)
Diphtheria	372	(15.8)	173	(4.9)	1,366	(57.7)	2,452	(69.3)
Scarlet Fever	21	(0.9)	14	(0.4)	864	(36.6)	2,713	(76.9)
Smallpox	26	(1.1)	1	(0.0)	983	(41.2)	15	(0.4)
Pellagra	557	(23.6)	205	(5.8)	604	(19.1)[2]	212	(6.0)
Syphilis	70	(3.0)	356	(10.1)	2,084	(82.5)[3]	28,534	(809.0)
†Infants Under One Year	62,245	(90.3)	47,046	(58.5)				
†Pregnancy—Childbirth	503	(7.3)	386	(4.8)				
Pneumonia	2,371	(100.5)	2,151	(61.0)				
Diarrhea Under Two Years	1,916	(81.2)	667	(18.9)				
Heart Disease	1,795	(76.1)	5,714	(162.0)				
Cancer	826	(35.0)	1,968	(55.8)				
Nephritis	1,446	(61.3)	2,889	(81.9)				
Accidents	936	(39.7)	2,307	(65.4)				
Ill Defined—Unknown	4,260	(180.6)	917	(26.0)				

* Provisional
1. First year of reports
2. for year 1929
3. For year 1919
† For 1,000 live births
Estimated population of State in 1914: 2,359,325; in 1939: 3,527,000.

My comment on this table must necessarily be brief. Your attention is called to the rapid decrease in mortality from tuberculosis, typhoid, diphtheria, scarlet fever, smallpox, pellagra, pneumonia, and infant and maternal mortality. The increase in syphilis deaths, and part at least of the increase in the cancer, nephritis and heart disease deaths, as well as the greater inci-

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dence of diphtheria, scarlet fever and particularly syphilis, are largely due to improved diagnosis and reporting. The same factor has decreased deaths from ill-defined and unknown causes. Automobiles are associated with most of the increased deaths from accidents. This table illustrates very well the difference made in official statistics merely by changes in the accuracy of reporting or diagnosis.

Every physician realizes that the health conditions in a community are not entirely dependent on the available medical care. General economic conditions, family income, educational and cultural levels, available food supplies, dietary habits, and dozens of other factors have a bearing. For most people all these things have improved along with medical facilities. In too many instances, however, there are community efforts for supplying about everything except medical care.

Schools

In twenty-five years we have seen state education grow from isolated scattered training of the few to a near-realization of Aycock's dream of giving every boy and girl a chance to develop to capacity. School health and sanitary facilities, the numbers of young citizens completing the seventh grade, high school and college, and the public and private investments in education have multiplied many times over.

Roads

In 1914, there were 4,313 miles of improved sand clay roads and a few short lengths of narrow waterbound macadam or brick roads for the use of horse-drawn vehicles or the 12,695 motor vehicles. Doctors and patients alternately faced stifling dust and jolting mudholes. Now we have 58,333 miles of improved roads, with 10,454 miles of hard-surfaced roads that bring doctor, patient and hospital closer together and allow more than half a million motor vehicles to travel much more safely than many of their drivers permit.

Hospitals

In 1914, there were forty small general hospitals in the state, the oldest of which, Rex in Raleigh, was established in 1839. Five were in Charlotte, and twenty-eight were privately built, developed and operated without philanthropic or tax-fund aid. Hospital facilities have increased rapidly, and the personnel, equipment, planning and service have kept pace. Radiological, bacteriological and pathological services have reached a high standard of quality and have become much more widely available. The impetus to progress given by the Duke Endowment and by the Hospital Savings Association sponsored by the State Medical Society has been tremendous. The developments in hospital standards and professionally recognized ratings, particularly those of the American College of Surgeons and the Duke Endowment, have helped to weed out the unfit and to place a premium on efficiency and service. Hospital prepayment experience should facilitate the development of satisfactory prepayment plans for complete medical and health care.

Dentistry

The profession of dentistry is young, alert, progressive and not hindered by "the prejudice of experience" and ancient tradition. Dentistry's contributions have been great, especially for pregnant women and for young children. Perhaps the most significant work has been the pioneering inauguration in 1918 of the first State Health Department School Dental Program and the first mouth-health teaching in the schools. The educational program in oral hygiene has been excellent. Dentists of the state have set a fine example to the other professions with their whole-hearted coordination of effort.

Nursing

Nursing care has had a rapid growth in quantity and quality. General and professional education requirements have been revolutionized, just as they have been for doctors, pharmacists and dentists. Maid service and farmed-out unsupervised home nursing is no longer the chief duty of a pupil nurse; she is being given a background befitting her professional status.

Pharmacy

The pharmacist plays a very important part in medical treatment, and progress in this field has been mainly toward better training, and replacement by pharmacists of nurses and other even less trained dispensers of drugs in hospitals. When physicians accept full responsibility for the treatment of

those suffering from gonorrhea, mental ills and other ailments difficult to care for and now largely avoided by most doctors, and when prescription writing is less dependent on suggestions of detail men, there should be a greater trend away from counter prescribing and the present widespread use of patent medicines.

Negro Health

Since there are a million Negroes in the state, and a large percentage of these are in the "indigent, ignorant and suffering" group, we cannot overlook the special medical problem involved for them and for others in a similar low income group. Great progress has been made toward better general living and economic conditions concurrently with specific improvement in health care, such as: More and better trained physicians, dentists, and nurses, and growing use of these in public health services; better hospital facilities, including obstetric units; increasing quantity and quality of medical, prenatal, delivery, postnatal and infant care, and improvement of midwives; wider use of health education built around Negro Health Week; special efforts to control infections such as tuberculosis, typhoid, venereal diseases, malaria, pellagra; better housing with safer water and food supplies and abolition of open privies; examinations of food handlers, prospects for marriage, and domestic servants; and general closer racial cooperation in medical care. Today, however, much is yet to be done toward better negro health, particularly in education, economic security, housing, nutrition, protection against infections, and in bringing medical, dental, nursing and hospital care within financial reach. A single example of the great need is that 65 per cent of negro deliveries are still done by midwives. As a group, negroes have been most cooperative and appreciative, and wherever they were given a chance have been most willing to participate valiantly in the solution of their health problems. Fortunately the former great difference between the amount and quality of medical care available to the two races is being gradually decreased.

Professional Qualifications and Working Facilities

Perhaps the greatest achievement during this period has been the improved qualifications of medical and health professions and their working facilities. Training of physicians, nurses, dentists and pharmacists has been intensified and extended over a longer period, and each group is starting with a better educational background. Pathology, radiology, biochemistry and bacteriology have been developed rapidly. Progress in surgical, obstetric and pediatric judgment and techniques would alone require volumes to recount. Mere examples are the wider use of precision surgical instruments, better anesthetics, and more effective aseptic techniques and antiseptic agents; greater use of parenteral fluids including transfusions; decrease in number and gradual improvement of midwives, and better control of toxemias; safer infant feeding, including cleaner and safer milk and better refrigeration of foods.

The University of North Carolina Medical School, Wake Forest (with plans already under way for the full four-year work), and more recently Duke have consistently given a high grade of medical training. Hospital field nursing schools have correspondingly been made better. The University of North Carolina School of Public Health gives promise of helping to prepare public health workers to carry on health work on a strictly merit basis. Extension medical courses, and also better journals and professional group meetings have done much to enable doctors to keep up with the best current practices. These extension courses, begun in 1916, constituted a pioneering venture in American postgraduate medical education. Gradual enlargement of full time public health staffs is a fundamental and continuing change, beginning at the State Board of Health with the Laboratory Director in 1908 and the State Health Officer in 1909; and in county health departments, beginning with Guilford, which started the second full-time county health department in the United States in June, 1911. (Jefferson County, Kentucky, claims to have begun work in 1908.) In 1912 Robeson County began the first full-time strictly rural department in the country. The year 1914 opened with only eight frail county health departments; in 1939 seventy-six of our one hundred counties had health departments, with growing financial support and with staffs of increasing competence, and our State Board of Health had developed into one of the best in the nation.

Individual Health Care

In the field of individual health care progress has been rapid, even though the mileposts are not so evident. Progress in the fight against tuberculosis and syphilis are indicated by interpretation of the statistics mentioned above. Gonorrhea is still neglected, though chemotherapy offers promise of improvement. Pellagra is decreasing. Automobile accidents and appendicitis should be responsive to proper control measures. The degenerative diseases—heart disease, cancer, nephritis—take an increasingly high toll, and their control calls for improved individual hygiene practiced from early life. Perhaps we shall again take up the life extension work with periodic physical checkups, begun in 1917, but soon dropped. Care of those in prisons, county homes and mental hospitals is improving slowly, and we can even see the beginning of enlarged mental hygiene efforts. The treatment and control of pneumonia with chemotherapy and sera, and of diabetes with the insulins are increasingly satisfactory. The facts being gained concerning vitamins, hormones, and the relationship of soil chemistry to the value of foodstuffs are becoming practically applicable.

Control of Infections

The control of infections through sanitation and immunizations has been the chief work of health departments and of many private physicians and engineers. Initial impetus came with the report on hookworm at the State Medical Society meeting in 1903, followed during the next year by field work in the state and work of the joint State Board of Health and Rockefeller Sanitary Commission during 1910-1914. The 1909 legislature provided for the beginning of vital statistics legislation. This was followed by enactment of the Model Law in 1913 and the state's admission to the registration area for deaths in 1916 and for births in 1917. Control of public watersheds began in 1909; the sanitary inspection of hotels and cafes started in 1917; and the sanitary privy law of 1919 was followed by better control of public milk supplies in 1923. From swatting flies and mosquitoes, we have gradually turned to screening and an attack on the vulnerable breeding places of these disease carriers. Environmental sanitation has been mainly responsible for the reduction in typhoid, dysenteries, hookworm, colitis, infantile diarrhea and enteritis. Careful epidemiological investigations by competently trained workers are not only showing that the infected family has been using a polluted water supply but also how and from what human source the disease came by way of that water. Institution of proper control measures is then a relatively simple matter. Epidemiological studies have also amply demonstrated a fact which we are prone to overlook in planning control measures: that most disease is subclinical. The development of routine use of tests formerly considered special, such as the Wassermann test or the malaria slide examinations, has improved diagnosis and consequent treatment. Constantly improving state and local laboratories have contributed greatly to this fundamental progress.

New biological preparations for preventive and curative inoculations, along with later chemotherapy, particularly the sulfonamide group of drugs, have made more scientific medical care possible. Research has led the way. The lag between new discoveries and their useful application has been decreased.

Health Education

Health information for the public has been increasingly emphasized by private practitioners and public health workers. Of primary importance have been instruction in sanitation and person hygiene, and the prevention of infections by inoculations against typhoid, diphtheria, and smallpox. The State Board of Health has done a notable job in keeping the public informed. The *Health Bulletin* has led the way since the first copy came out in April, 1886. The practice of giving careful individual replies to as many as 5,000 letter inquiries a year has been of inestimable value. The medical inspection of schools, and cooperation with public school teachers, begun in six counties in 1915, has progressed rapidly, culminating in the Coordinated School Health Unit established in 1939. Even those who supply the greatest health problems are developing a preventive outlook and learning when to call the doctor and how to cooperate with the physician. A better informed public demands, and is more willing to pay for, adequate medical care; and, as a result, medical and health care are being democratized. Individual and group instruction, movies,

newspaper articles, radio programs and exhibits have proved useful. Better public understanding of health problems has resulted in coordination of efforts and in better planning for family and community, as well as for individual, health.

Child Hygiene

In no field have more notable contributions been made than in child hygiene. From the school child the work has proceeded nearer toward the sources of individual life: to the preschool group, to the infant, to postnatal, obstetric and prenatal care of the mother, to the hygiene of conception, and beyond to preparation for marriage. Midwives have been reduced from 9,000 to 2,200, and these latter are trained and carefully supervised. An act to prevent infant blindness was passed in 1917. From 1918 to 1923 over 23,000 tonsil-adenoid operations which were sponsored and planned by the State Board of Health, and performed by private physicians, demonstrated the usefulness and safety of this procedure. A law requiring the physical examination of school children and one to control venereal diseases were passed in 1919. In 1920 an elaborate educational unit on sex hygiene and venereal diseases was developed. The 1921 Marriage Law gave physicians a strategic opportunity to prove the usefulness of medical examination and advice to the prospective heads of a new family, but neither physicians nor those about to marry appreciated the situation properly and therefore the law was revoked. Later, marriage, pregnancy, and domestic servant laws of greater usefulness were passed. Sheppard-Towner funds from 1922 to 1929, Social Security Funds since 1936, and the Lafollette-Bulwinkle and Smith Reynolds Funds since 1938 have vitally stimulated health care through rapid progress in general local health work, but especially through syphilis control and maternal-infant hygiene. When the Reynolds Fund trustees gave their fund straight to our State Board of Health without setting up a separate organization of their own, they did something new in philanthropy.

Maternal-infant health centers have increased rapidly since 1936 wherever there is considerable midwife practice. These 150 centers are operated by 300 practicing physicians, and the whole community is being benefited as thousands of women are learning for the first time the value of medical care.

Closing Comment

In twenty-five years we have seen miraculous progress in accuracy and efficiency of prevention, diagnosis, and treatment of disease. Efforts against hookworm and typhoid have demonstrated the importance of keeping man's own filth from his water, food and feet—environmental sanitation. The scientific program aimed against tuberculosis has stimulated individual hygiene, including improved nutrition. Recent widespread instruction and keen interest in syphilis have awakened a profound feeling of community responsibility, not only for control efforts against this disease, but for general medical and health care as well.

The rapid increase in speedy communication and transportation have brought new conveniences and new hazards. A calamity awaits us if progress in these or in other mechanical contrivances outruns that of medical safeguards.

Widened and deepened knowledge has necessitated specialization; and specialization, along with the development of precision methods in prevention, diagnosis and treatment, has greatly reduced the situations in which doctors formerly found themselves helpless. The specialist who cures an ailing stomach or a diseased sinus, or even prevents the occurrence of certain infectious diseases, however, may yet leave the individual with disintegration of morale that prevents usefulness or leads to anti-social behavior. In our cocksureness and pride of achievement, we hear a warning that the whole man is more important than a single organ or system; that our efforts against mental or physical breakdown and degenerative disease are far from adequate; that undiagnosed emotional disturbances often send patients to cultists and quacks; that too often when we most desire to heal we are utterly helpless; and that many young doctors know too little of patience, individual and family counseling, and humility.

Health progress in this quarter-century has been chiefly in better control of infections, in improving nutrition and in increased health education. Emphasis has been largely on the first; further progress lies in a better balance among all three and in doing more to control the non-infectious enemies of good health.

No "leading ten" or other "leading" group of contributors to this remarkable health progress can be selected. A few names recur frequently—almost monotonously—when one recounts fundamental contributions to the health progress of our state during this period. Many more have served magnificently away from the footlights. History may as properly recount the many nameless joint contributions of all as tell the stories of a few leaders. Those whose spirit and fine works have been recognized by their fellows and the public generally would, no doubt, be the first to insist that equal recognition be shown to all who have quietly, courageously, devotedly, happily given their best toward the prolongation of useful life and the promotion of more abundant health for all in North Carolina during the last twenty-five years.

CARCINOMA OF THE CERVICAL STUMP

A Study of the Incidence in a Series of Patients with Cervical Carcinoma Seen in North Carolina

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In 1932 through funds and secretarial facilities furnished by the Free Hospital for Women a study was made of the occurrence of carcinoma of the cervical stump by tracing the patients who had undergone supravaginal hysterectomy[1]. This was a tedious and expensive method of arriving at a conclusion but, as Dor[2] and Stark[3] say, it is the only true way of determining how serious the threat of cervical stump carcinoma is. In 1936 a similar attempt to trace patients was made in North Carolina. This was abandoned because the population is so largely rural, and because families move about considerably and the incidence of illiteracy is high. It became obvious that only the data available in the hospital records could be used in any study. The patients seen in the out patient department or treated in the house from the opening of Duke Hospital in 1930 through January 1940 on whom the diagnosis of carcinoma of the cervix was made are included in the study. Patients who might have had adenocarcinoma of the fundus involving the cervix or recurrences following an incorrectly done supravaginal hysterectomy are not included. During the decade a total of 620 patients with carcinoma of the cervix were seen. The diagnosis was made either by biopsy or, in advanced cases, by gross appearance only. These patients were from North Carolina, South Carolina and Virginia; a few came from Tennessee and Georgia. The general series of patients with carcinoma will be reported in detail later.

Thirty-four patients had carcinoma of the cervical stump when seen in Duke Hospital. One patient had a large recurrence following the excision of a carcinomatous stump elsewhere. Of the remaining 585 patients, 348 were white and 237 colored, a ratio of about 59 to 41. Only 129 had a fairly early lesion, confined to the cervix (Schmitz I or II.) Four hundred and forty-two, or about 73 per cent, had advanced lesions (Schmitz III, IV or V). In 14 patients, either because of incomplete description or previous treatment, the state of lesion could not be exactly determined. This classification, it must be made clear, was done by one person on the basis of recorded descriptions. In most cases contemporaneous grading was not available. The distressingly large number of advanced cases in this series is apparently not peculiar to this region. Ward and Sackett[4] in a series of 752 patients with cervical carcinoma reported an incidence of 80 per cent advanced cases. Watkins[5] in Portland, Oregon, reports an incidence of 70 per cent advanced cases in a series of 154 patients.

Fifty-four patients had received previous treatment with x-ray or radium elsewhere. Eight had been subjected to a total hysterectomy, and 8 more had received irradiation in addition to hysterectomy. There were seven instances of adenocarcinoma of the cervix confirmed by biopsy. Three patients

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1. Pearse, R.: Supravaginal Hysterectomy. Surg. Gynec. and Obst. 58:845-851 (May) 1934.
2. Dor, J.: Le cancer du col restant, Marseilles med. 2:601 (November 15) 1932; 649 (November 25), 1932.
3. Stark, G.: Uber Stumpfkarzinome nach supravaginaler Amputation des Uterus, Zentralbl. f. Gynak. 61:1528-1537 (June 26), 1937.
4. Ward, G. G. and Sackett, N. B.: Results of Radiation Therapy for Carcinoma of the Uterus, at Woman's Hospital, New York, 1919-1932, J. A. M. A. 110:323-327, (January 29) 1938.
5. Watkins, R.: The Control of Cancer in Women From the Medical Viewpoint, Am. J. Obst. and Gynec. 39:394-399 (March) 1940.

CARCINOMAS OF THE CERVICAL STUMP - DUKE UNIVERSITY HOSPITAL 1930–1940

PATIENT	COLOR	AGE	PARA-	ORIGINAL OPERATION	TREATMENT OF ADNEXA	CONDITION REQUIRING OPERATION	INTERVAL	STATE OF CARCINOMA	PATHOLOGY OF CERVIX	REMARKS
1	C	35	2-0-2	SUPRAVAGINAL HYSTERECTOMY	BILATERAL SALPINGO-OOPHORECTOMY	MYOMA, CHRONIC SALPINGITIS	1 MONTH	EARLY	SQUAMOUS	OPERATED AT DUKE HOSPITAL
2	W	49	6-1-5			MYOMA, TUBO-OVARIAN ABSCESS	3 MONTHS	ADVANCED		LOWER SEGMENT EDEMATOUS AT OP
3	C	29	1-1-0			MYOMA	4 MONTHS			CERVIX CAUTERIZED
4		20	2-0-2			UNKNOWN	5 MONTHS	EARLY		
5		40	5-1-4			MYOMA	6 MONTHS	ADVANCED		
6		34	8-0-8			MYOMA, CHRONIC SALPINGITIS				
7	W	53	3-0-3			UNKNOWN	7 MONTHS			CERVIX HAD BEEN EXCISED
8	C	40	3-0-3			SALPINGO-OOPHORITIS	1 YR 3 MOS			
9	W	59	8-0-8			UNKNOWN	2 YEARS	EARLY		
10	C	54	10-0-2					ADVANCED		
11		42	2-2-0			MYOMA		EARLY		
12	W	56	4-0-2			UNKNOWN	3 YEARS	ADVANCED	NOT RECORDED	PREVIOUSLY IRRADIATED
13	C	74	0-0-0			MYOMA				IRRADIATED AT DUKE HOSPITAL
14	W	38	0-0-0				5 YEARS			
15	C	38	2-2-0						SQUAMOUS	CERVIX NORMAL AT OPERATION
16		38	5-0-5							
17	W	38	8-2-6		LEFT SALPINGO-OOPHORECTOMY	ENDOMETRIAL POLYP, SALPINGITIS	6 YEARS			CERVIX CAUTERIZED AT DUKE HOSPITAL
18	C	58	9-1-5			MYOMA	7 YEARS		NOT RECORDED	
19		57	0-0-0				9 YEARS		ADENOCARCINOMA	OPERATED AT DUKE HOSPITAL
20		44	4-0-2			UNKNOWN			NOT RECORDED	IRRADIATED AT DUKE HOSPITAL
21		34	0-0-0		BILATERAL SALPINGO-OOPHORECTOMY			EARLY		
22		54	9-2-7			MYOMA	10 YEARS	ADVANCED	SQUAMOUS	
23	W	43	4-1-3			RETROVERSION	11 YEARS			
24		54	6-1-2			MYOMA		EARLY		
25		57	9-0-9			UNKNOWN		ADVANCED		PREVIOUSLY IRRADIATED
26	C	40	7-7-0			MYOMA			NOT RECORDED	IRRADIATED AT DUKE HOSPITAL
27		43	6-0-6						SQUAMOUS	
28		53	10-6-3				14 YEARS		NOT RECORDED	IRRADIATED AT DUKE HOSPITAL
29	W	38	3-2-0		BILATERAL SALPINGECTOMY RIGHT OOPHORECTOMY	UNKNOWN			SQUAMOUS	
30	C	49	2-0-1			MYOMA	15 YEARS		NOT RECORDED	IRRADIATED AT DUKE HOSPITAL
31	W	52	7-2-3		BILATERAL OOPHORECTOMY	SALPINGO-OOPHORITIS			SQUAMOUS	
32		42	3-1-2			UNKNOWN	16 YEARS		NOT RECORDED	CAUTERIZED - 12 YEARS TO 13 YEARS AGO
33		44	6-3-3			MYOMA	18 YEARS	EARLY	SQUAMOUS	
34	C	57	0-0-0			UNKNOWN	20 YEARS	ADVANCED	NOT RECORDED	IRRADIATED AT DUKE HOSPITAL
35	W	63	7-1-6		BILATERAL SALPINGECTOMY	MYOMA	23 YEARS	EARLY	SQUAMOUS	

had an associated pregnancy, and two had prolapse. Twenty-five patients gave a definite history of never having been pregnant, while 553 had been pregnant. The status of seven in regard to pregnancy was not known.

The youngest patient with ordinary carcinoma of the cervix was twenty-three years old, and the oldest eighty. The age at which cancer was diagnosed was:

Age	*No. Patients*
20-29	38
30-39	144
40-49	197
50-59	142
60-69	54
70-79	9
80	1

With these data concerning the contemporaneous patients with true carcinoma of the cervix, the status of the 35 patients with stump carcinoma can be more intelligently evaluated. The incidence in a total series of 620 cases is about 5.6 per cent. As Faure[2] has already said, this is the sum total of information that can be derived from these statistics. In making interpretations, the facts that Duke University Hospital has the most extensive radiological equipment in the vicinity, that it is a teaching institution and that the patients are referred from a large geographical area must be constantly borne in mind. Otherwise an alarming significance might be attached by the "totalists".

Tabulated below are the incidences of carcinoma of the cervical stump according to the time at which the study was made and the geographical region.

Year	*Author*	*Region*	*Carcinomas of the Cervix*	*Carcinomas of the Cervical Stump*	*Per Cent*
1930	Branscomb(6)	Baltimore	1804	46	2.3
1932	Dor(2)	Marseilles	364	8	2.0
1934	Fahndrich(7)	Kiel		12	1.41
1934	*V. Graff (8)*	*Iowa*	*263*	22	8.3
1935	Kretschmar & Sprague(9)	Ann Arbor	1022	18	1.76
1935	Healy & Arneson(10)	New York	2600	67	2.6
1935	Richardson(11)	Baltimore	940		2.3
1935	Nuthall & Todd(12)	Manchester		38	2.5
1936	Meigs(13)	Boston	1218	26	2.5
1936	Scheffey(14)	Philadelphia	273	10	3.66
1937	Nielsen(15)	St. Lukas, *Stiftelse*	420	9	2.0
1938	Ward & Sackett(4)	New York	752	56	7.4
1939	*Black(16)*	*Cleveland*	*234*	*19*	8.1
1940	Pearse	Durham	620	35	5.6

6. Branscomb, L.: The Occurrence of Cancer in the Uterine Cervical Stump After Supravaginal Hysterectomy, Am. J. Obst. and Gynec. 20:66-69 (July) 1930.
7. Fahndrich, J.: Das Risiko eines Zervixstumpfkarzinoms nach supravaginaler Amputation, Zeitschr. f. Geburtsh. u. Gynak. 109:382-407, 1934.
8. Von Graff, E.: Cancer of the Cervical Stump Following Subtotal Hysterectomy, Am. J. Obst. and Gynec. 28:18-32 (July) 1934.
9. Kretschmar, N. R. and Sprague, G. S.: A Consideration of the Surgical Menopause After Hysterectomy and the Occurrence of Cancer in the Stump Following Subtotal Hysterectomy, Am. J. Obst. and Gynec. 29:168-175, (February) 1935.

The ages of the patients with carcinoma of the stump were as follows:

Age	*No. Patients*
20-29	2
30-39	8
40-49	11
50-59	12
60-69	1
70	1

The youngest was twenty years and the oldest seventy-four. Five of the patients, or 11 per cent, were nulliparous. Thirteen were white and 22 colored. The condition for which the supravaginal hysterectomy was performed was:

	No. Patients
Unknown	11
Salpingo-oophoritis	3
Fibromyoma	20
Retroversion	1

Since only three of these original hysterectomies were performed at Duke this information can be regarded as of doubtful accuracy. Attempts to obtain information from the original operators were in the main unsatisfactory. It cannot be said that fibromyomata are responsible for subsequent development of stump carcinoma. The colored patients with carcinoma of the stump outnumber the white. In this region the commonest indication for hysterectomy is a fibromyoma. Colored patients are much more likely than white to develop fibromyomata. The data are too incomplete on the handling of the adnexa to permit any conclusions. When the diagnosis of cancer of the stump was made at Duke Hospital 26 patients presented advanced lesions. This represents an incidence of 74 per cent. In one patient the state of the lesion was obscured by previous treatment. Only 8 presented a lesion confined to the cervix. This incidence of advanced lesions is the same essentially as in the general series.

Almost all authors have attempted to classify their patients with carcinoma of the stump into those who had the disease at the time hysterectomy was performed and those who have "true" carcinoma of the stump. Schafer[17], Meigs[13] and Dor[2] have stated that any carcinoma that becomes evident within a year following the operation was probably present at the time of the supravaginal hysterectomy. The first case in the table illustrates the difficulty of applying this criterion. A thirty-five year old colored female had a supravaginal hysterectomy for fibromyomata and chronic salpingitis in Duke Hospital. The patient was admitted by a reliable observer and seen in preoperative conference by at least five others. All described the cervix as small and clean. The removed uterus gave no evidence of malignancy. When the patient was seen a month after discharge the cervical stump was small and clean, but there was an obvious early carcinoma. This was arising from the mucosa of the *portio vaginalis* and was proved to be squamous by biopsy. This case shows the difficulty of sharply differentiating the "true" from the "false" carcinoma of the stump. On the other hand, the second case in the table is probably illustrative of the more usual state of affairs. The patient had a supravaginal hysterectomy for tubo-ovarian abscess and fibromyomata three months before an advanced carcinoma of the stump was discovered. The operator supplied the information that the lower uterine segment and cervix were of a peculiar edematous consistency. It is reasonable to infer that this patient did have carcinoma at the time of operation. Exact observations of the above sort are rare. Most cervical carcinoma arises from squamous epithelium. Conization, cauterization and plastic procedures are directed toward removing the secretory mucosa of the endocervix, and more cases of carcinoma are constantly being reported after such prophylactic procedures. Women who have not been pregnant develop carcinoma of the cervix with moderate frequency. The origins of carcinoma are still too shrouded in obscurity for any very positive statements to be made. The development of cervical carcinoma is not entirely on the basis of previous trauma and infection. It might be that a genetically potentially malignant cell can be quiescent for long periods

10. Healy, W. P. and Arneson, N.: A Study of Carcinoma of the Cervical Stump Developing After Subtotal Hysterectomy, Am. J. Obst. and Gynec. 29:370-383 (March) 1935.

11. Richardson, E. H.: Total Versus Subtotal Abdominal Hysterectomy in Benign Uterine Disease, Am. J. of Surg. 28:588-595 (June) 1935.

12. Nuthall, J. R. and Todd, T. F.: The Prognosis in Carcinoma of the Cervical Stump after Subtotal Hysterectomy. A Critical Analysis of 38 Cases, J. of Obst. and Gynaec. Brit. Emp. 42:860-866 (October) 1935.

13. Meigs, J. V.: Carcinoma of the Retained Cervix or Subtotal Versus Total Hysterectomy, Am. J. Obst. and Gynec. 31:358-366, (February) 1936.

14. Scheffey, L. C.: Carcinoma of the Cervical Stump, J. A. M. A. 107:837-844 (September 12) 1936.

15. Nielsen, M.: Carcinoma of the Cervical Stump After Supravaginal Amputation, Acta obst. et gynec. Scandinav. 17:295-306, 1937.

16. Black, M. E.: Cervical Stump Carcinoma, Surg. Gynec. and Obst. 68:898-902, (May) 1939.

17. Schafer, G.: Beitrag zur Frage des Cervixstumpfkarzinoms, Zentralbl. f. Gynak. 57:2068-2074 (September 2), 1933.

and then explode into neoplastic activity. Certainly the time elapsing between the supravaginal hysterectomy and the development of carcinoma cannot be used with too much assurance in determining whether carcinoma was present at the time of operation. Also the remarkable individual variation of each neoplasm must never be forgotten. The case of the red haired Jewess with large metastases in her neck from a squamous carcinoma of the cervix is in point.

Of the 35 patients with carcinoma of the stump:

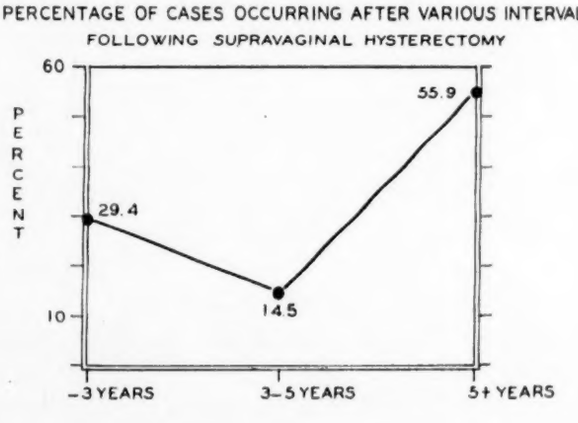
7 had the diagnosis made in less than a year after operation—20.5 per cent. All these had biopsies and had squamous carcinoma.

10, including the above 7 patients, had the diagnoses made in less than three years—29.4 per cent.

6 patients had the diagnosis of cancer made three to five years later—14.5 per cent.

19 had the diagnosis made after five years—55.9 per cent.

Plotted on a scale as Herold[18] and Waldeyer[19] have done the following graph results:



These authors feel that the high incidence within the first three years is due to "false carcinoma of the stump". It is probable that for the most part this is true, but the absolute proof is lacking.

Biopsies were performed at Duke Hospital, or a reliable report was available, in 26 instances. All were squamous cell carcinoma except one adenocarcinoma. The patient, a colored nullipara, had a supravaginal hysterectomy nine years previously for a fibromyoma at Duke Hospital. Two patients are known to have had either a cauterization or plastic procedure twelve years and six years before the diagnosis of carcinoma.

This study throws no light whatever on the relative merits of supravaginal and total hysterectomy. The severity of the threat of carcinomatous degeneration of the stump can be evaluated only by tracing the patients that have undergone supravaginal hysterectomy. Scheffey[14] has done this in Philadelphia and found an incidence of one per cent. Since this method is very difficult, the method of Dor[2], Haun[20] Herold[18], Meigs[13] and Stark[3] of inferring the incidence of carcinoma of the stump from studies of the population of a hospital or group of hospitals is valid. Comparing the number of supravaginal hysterectomies with the number of patients admitted with carcinoma of the stump, they obtained the following ratios:

	Per Cent
Dor (Marseilles)	**0.64**
Haun (Altona)	**0.52**
Herold (Jena)	**0.60**
Meigs (Boston)	**0.73**
Stark (Berlin)	**1.23**

Certainly supravaginal hysterectomy is a more rapid and easy procedure. The question cannot be decided in the best interests of the patient by doing routinely either a total or a subtotal hysterectomy. The procedure must be modified for the individual. If the operative procedure proves to be time-consuming and formidable, a supravaginal hysterectomy is preferable. The cervix can be subsequently treated in whatever manner is necessary. If the operator's mortality and morbidity are low (J. P. Pratt of Detroit has reported a personal mortality of 0.5 per cent in total hysterectomy[10]), he is justified in extending the use of the more radical procedure. It is helpful to prepare the vagina of every patient about to be subjected to hysterectomy so that the total operation may be carried out if feasible. The cervix should, of course, be most carefully examined preoperatively in every instance, and biopsy freely employed. The threat of malignant degeneration of the cervix is not serious enough to warrant endangering the patient's welfare by adding excision of the

18. Herold, K.: Berechtigt die Moglichkeit des Auftretens eines Stumpfkarzinoms zur Ablehnung der supravaginalen Uterus amputation? Zentralbl. f. Gynak. 57:108-113 (January 14,) 1933.

19. Waldeyer, L.: Das Cervixstumpfkarzinom nach supravaginaler Uterus amputation, Zentralbl. f. Gynak. 58: 35-44 (January 6) 1934.

20. Haun, K.: Beitrag zur Frage des Stumpfkarzinoms, Monatschr. f. Geburtsh. u. Gynak. 95:91-95 (August) 1933.

cervix to an extensive operative procedure. Colored patients, with their large myomata, extensive inflammatory processes and varied vaginal flora, are poorer candidates for total hysterectomy than white. All patients must be instructed as to the necessity of periodic examinations following any sort of hysterectomy, and should be made to understand that bleeding of any sort is dangerous. This again is less of a problem among private patients than among ward patients. In Duke Hospital all the patients with carcinoma of the stump were ward patients.

Abstract of Discussion

Ledyard DeCamp, M.D. (Fayetteville): The findings presented in Dr. Pearse's paper are extremely interesting for the light they shed on the number of cervical stump carcinomas in relation to the total number of cervical carcinomas appearing in the Duke Clinic and Hospital. As the patients came from such a wide area, no conclusions can be drawn as to incidence with respect to geographic distribution, race, or environment; nor have we any basis for determining how many cervices left after supravaginal hysterectomy become the sites of malignant growths.

The most pertinent question is this: What should be done with the cervix when hysterectomy is being performed for a fibromyoma or other nonmalignant uterine pathology?

A badly diseased cervix should always be removed if the condition of the patient and the experience of the operator warrant the increased risk. Removal of the slightly diseased cervix should be resorted to only by surgeons of extensive experience. There is no evident reason why the healthy cervix should be removed routinely; for it is doubtful if any man can do complete hysterectomies year in and year out with as low an operative mortality as that incident to the supravaginal removal. Men of limited experience will do well to leave the cervix in difficult cases even though it is diseased; it can be kept under observation and removed or cauterized very easily from below at a later date. On this point one notes that all the stump carcinomas in Dr. Pearse's Duke series were found in ward cases. They are the patients who often neglect to return for periodic examinations, and who fail to notice or report early symptoms. When they do present themselves, they fall into the category of advanced cases, for whom little can be done.

Dr. W. L. Thomas (Duke University): First of all, I want to commend Dr. Pearse for the study which he has made.

Gynecologists don't agree yet as to whether a subtotal hysterectomy should be done for fibroids. I feel that the total hysterectomy is the best procedure. I know that will provoke an argument. However, I was with Dr. Pratt for a year, who reports .5 per cent mortality with complete hysterectomy, and I don't believe that such a low mortality can be had with the subtotal hysterectomy procedure.

I notice that Dr. Pearse did not give us the salvage from carcinoma of the cervical stump. The salvage, as far as I can judge from the literature, is only 5 to 14 per cent. Even if it is recognized early, the management of a carcinoma of the cervical stump with irradiation therapy is much more difficult than a straight carcinoma of the cervix, where the uterus serves for screening purposes.

The measurement of that cervical stump is important when you use your rating. In a recent article Curtis stated that he is removing the cervical stump either before or after irradiation therapy because his results from irradiation therapy alone have been so uncertain.

I can't agree with him on that. I still think that carcinoma of the cervical stump should be treated with irradiation therapy.

We have recently found there is one advantage where the stump is small, if you use vaginal cone x-ray, or transvaginal x-ray therapy. In other words, instead of using six portals, two lateral, two anterior, and two posterior, we use seven, one through the pudendal root, shooting directly through that to the cervical stump.

Dr. H. B. Haywood (Raleigh): One suggestion I would like to make is that we probably should keep in mind a vaginal hysterectomy. Unless the fibroids are too large, or the pelvic condition is too extensive a vaginal hysterectomy usually lowers the mortality as compared with a supravaginal hysterectomy done from above.

Chairman Tayloe: Is there any further discussion of Dr. Pearse's paper? If not, I will ask Dr. Pearse to close the discussion.

Dr. Pearse: I have little to add. I think that a vaginal hysterectomy for myoma, particularly if the patient has any adnexal disease, is rather a formidable and difficult procedure. At least it is for me. I believe that each case must be individualized, as I have said here. If you attempt to do, routinely, a total hysterectomy on every case, or routinely, a supravaginal hysterectomy, you are bound to get into difficulties. The only sensible way to solve the problem is by treating each case as a peculiar problem. I agree with Dr. Thomas. I believe that the indications for total hysterectomy should be extended, and I agree with those who say that some degree of training is necessary before a gynecologist starts performing total hysterectomies routinely. I have seen some unfortunate results from total hysterectomies done by inadequately trained people.

DIABETES MELLITUS

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Diabetes mellitus is an ever present clinical problem and enemy of man; and there is little likelihood of its being talked or written about too much for a long time. There are 400,000 diabetics in this country. The incidence is increasing. Statistics show that about 2.08 per cent of the present population may be expected ultimately to die of it. The mortality is about twice as high in females as in males, and higher for whites than for negroes. The disease is increasing faster in urban than in rural areas. It is tremendously more frequent in fat people and Jews. It is more common in the so-called "higher" social brackets.

Until quite recently, we confidently said

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that diabetes was caused by degeneration of the islands of Langerhans. Now we are not so sure that this is the whole truth. Some go so far as to say that primarily the pancreas has nothing to do with the cause of diabetes. F. G. Young, working in England —and his work has been confirmed by Campbell and Best in Toronto—produced permanent diabetes experimentally by the injection of anterior pituitary extract. Others have caused an alleviation of the disease by irradiation of the anterior pituitary body.

Whatever may be the theoretical considerations as to its etiology, incidence and pathology, the most important known fact about the pathological physiology of diabetes is the inability of the body to metabolize carbohydrates, or the lack of ability to metabolize a sufficient amount for normal body needs. The islet cells manufacture insulin, which is necessary for the conversion of carbohydrate food into body tissue after it has reached the blood stream. We do not know what happens to make them stop manufacturing insulin. The islet cells are not destroyed, and microscopic evidence of degeneration is slight. Boyd states that the only abnormality in a diabetic pancreas is the absence of granules in the beta cells of the islets; and the pancreas must be examined within two or three hours after death to find even this.

As a result of the diminished insulin supply, a train of symptoms becomes evident, recognizable as a disease entity. The picture varies in different cases, owing among other things to the degree of the insulin want, the differences in the ability of the body to adjust itself to the disordered metabolism, and the presence or absence of complications; however, polydipsia, polyphagia, polyuria, weakness and loss of weight are usually present. In my experience, weakness is more constant than any of the other symptoms. Pruritus, especially pruritus vulvae, increased susceptibility to infection, abdominal pain, gangrene, dizziness, and headaches are often found, upon investigation, to have a diabetic background. Infection frequently brings out a diabetes not previously suspected. Sometimes, glycosuria is found in routine examinations, when the patient has had no symptoms. Blood sugar higher than normal confirms the diagnosis.

Diabetics get better and worse at times, without apparent reason. I am not speaking here of the exacerbation of the disease by infection. I have patients who need insulin part of the time and who at other times seem able to eat almost anything with impunity. Perhaps the amount of exercise, which we know has an effect on carbohydrate metabolism similar to insulin, has something to do with this.

Although I have been practicing medicine for nine years, I feel that I have really been treating diabetes for the past three years only. Of course I recognized the disease before that time, and attempted to treat it. I feel that one man died from improper handling. One week after that death, I was in Boston with Dr. Joslin. I found that my conception of the complexities of diabetic treatment was largely false. The methods they used there were, contrary to my previous conviction, very simple. Now, I can honestly say that I genuinely enjoy treating diabetes. There is nothing in my medical practice which is more completely satisfying than to see these patients respond to the proper care.

During the past three years, I have often said that there is no reason why a diabetic cannot live just as long, feel just as good and work just as hard as a non-diabetic, provided the disease is discovered reasonably early when no complications exist, and the proper treatment is given and continued. Neither do I think there is any excuse for a patient dying in diabetic coma. It has not been long since I would have laughed at such statements. I want to make it perfectly clear that I am referring to the diabetic who has been treated properly and who thoroughly cooperates with the treatment. I am not referring to the neglected diabetic who is first seen by the physician in coma.

If a patient is found to have glycosuria, with or without symptoms of diabetes, one or more blood sugar determinations must be made to establish the diagnosis. Every person whose urine shows a positive Fehling or Benedict test does not have diabetes. For example, pregnant women sometimes show positive tests from lactosuria, and there is no proof that these women are any more apt to develop diabetes later than the average person. Statistics of the Joslin Clinic reveal that approximately 15 per cent of nearly 15,000 patients examined there whose

urine was positive for sugar were not diabetic. Renal glycosurias account for some, and there are about ten sugars other than glucose which will cause positive Fehling and Benedict tests.

In making a diagnosis of this disease, I think there is too great a tendency to depend on one blood sugar determination. It is quite possible for one determination in a borderline case to be below the accepted upper limit at the time the test is made, thus incorrectly leading to the conclusion that the patient has not the disease.

Also I believe there is too much tendency to make *only* fasting blood sugars. They do not give a completely accurate picture of the patient's status from time to time during the day and night under his actual living conditions. We have to treat the patient during the whole twenty-four hours, and not just for a short period before breakfast each morning.

A fasting blood sugar should be made on blood collected at least twelve hours after the patient has ingested food. Just before breakfast is usually the most convenient time for making the collection. If such a fasting blood sugar test made on venous blood shows 140 mg., or more, of glucose per 100 cc. of blood, the patient is diabetic. When blood sugar determinations are made on capillary blood by the micro method, values of about 20 mg. higher per 100 cc. are found, all other things being equal. We use the micro method in cases in which blood sugars must be done so frequently that the loss of blood may be detrimental to the patient.

Cases of diabetes mellitus may be classified in three ways: according to whether they are acute or chronic; mild, moderately severe or severe; simple or complicated.

The basis of the treatment of diabetes is regulation of the diet. Insulin is necessary in moderately severe or severe cases. Prior to the introduction of insulin into medical practice in 1922, only dietary treatment was available, which was far from adequate to control most cases. The basic idea before insulin was rigid restriction of carbohydrates. Since insulin, restriction of carbohydrate intake has not been necessary, but the carbohydrate restriction ideas of pre-insulin days have died hard. Even now, eighteen years after insulin was first used clinically, many physicians still restrict carbohydrate intake—in some cases to the point of carbohydrate starvation — to the great detriment of the patient.

The average adult non-diabetic consumes in twenty-four hours an amount of food representing from 1000 to 3000 calories. The ratio of carbohydrates, protein, and fat in a balanced diet is roughly 10: 5: 6, in grams. The diabetic should have the same caloric intake and the same ratio of basic foods as the non-diabetic. This statement may be surprising to some, but on close examination, the logic of it can be seen. A healthy man, doing a job which requires the expenditure of a certain amount of energy, automatically selects a diet very close to the above outlined normal diet, if adequate food is available. If this man develops diabetes, he becomes unable to do the work he has been doing, because even though he eats the same amount and kinds of food, he cannot properly use it in his body, because his metabolizing machinery is disordered. Insulin in adequate amounts is necessary to restore his metabolism to smooth working order, and the insulin given him by needle is as efficient as that which came from his pancreas before he got sick. Formerly we erroneously thought that restriction of carbohydrates in a diabetic spared the pancreas, already damaged, from imagined overwork. We now know that this idea, while theoretically attractive and logical at first glance, is not valid in actual practice. Therefore, the diabetic should have a normal diet, including the same amounts of carbohydrate, protein and fats that he ate before he got sick. This is necessary if we expect to restore him to his former vigor, weight, and sense of well-being. He should be allowed his normal diet, and then given the amount of insulin necessary to keep his urine sugar free and the blood sugar between 100 and 170. One very important thing which remains is to regulate his diet so that he eats the same amount of food every day—not the same food, but the same amount of food value.

The so-called high carbohydrate diet, which I prefer to call the normal carbohydrate diet, in some way, over a period of time, increases the patient's sugar tolerance. Patients eating a normal carbohydrate diet usually require, in course of time, less and less insulin. This phenomenon is not seen, or occurs to a much less extent, in patients who are allowed very small amounts of car-

bohydrates. No adult diabetic should ever be given less than 100 gm. of carbohydrate per 24 hours, and seldom less than 150 gm. One hundred grams of carbohydrate is contained in ten average oranges, or twenty soda crackers, or about 500 gm. of Irish potato. A normal carbohydrate intake is necessary for maintaining the diabetic's nutrition. There is far less likelihood that diabetics on a normal carbohydrate diet will later develop stenosing vascular disorders, such as gangrene and angina pectoris, than is the case with diabetics on low carbohydrate intake. Undiagnosed diabetics, whose diets have been high in carbohydrate, have been thrust into coma when they were suddenly put on very low carbohydrate, with a high fat intake. It is much easier to handle patients when they are given normal amounts of this energy food. The temptation to eat forbidden sweets is removed, and they are happier from every standpoint.

At the Joslin Clinic I discovered a diet card which solves the problem of diet for diabetics. On it is printed the outline of six diabetic diets, ranging in value from 1137 to 2307 calories. The carbohydrate in these diets ranges from 100 to 200 gm., the protein from 47 to 100 gm., and the fat from 61 to 123 gm., per 24 hours. The diets are designated numerically. Reading to the right are the translations into actual food. For example, the ration in diet No. 5, containing 2307 calories, is 300 grams of 5 per cent vegetable, 400 grams of orange, 240 grams of oatmeal (cooked), 210 grams of Irish potato, 120 grams of bread, 240 grams of milk, 1 egg, 180 grams of any meat minus its fat, 30 grams of bacon weighed after it is cooked, 120 grams of 20 per cent cream and 45 grams of butter. This amount of food is divided into three meals, according to the reasonable desires of the patient. On the card are found lists of 5, 10, 15 and 20 per cent vegetables, any of which may be substituted to give variety, while maintaining the same food value. Various fruits, and even sugar, may be substituted for the orange allowance, and the equivalents for substitution are given in such a way that this may readily be done with the simplest arithmetic. It is easy to explain the diet card to patients, and easy for them to follow it.

I consider it essential for good regulation and control that every patient have and use a diet scale. I do not consider it impractical to insist on this, and yet I frequently have doctors tell me that it is. I buy the scales in dozen lots, and pass on the better price to the patient.

Most of my patients are amazed when they find that I allow sweets and starches, and even sugar, but they are all pleased and feel better on liberal carbohydrates.

When diabetes has been discovered, I think the patient should be sent to the hospital for a week or ten days for regulation and instruction, although hospitalization is not absolutely necessary. Patients observe the preparation and weighing of their diet in the hospital kitchen, and learn to test their urine in the laboratory. If insulin is required, they are drilled in the technique for administering it. Two blood sugar tests are done on them each day—one just before breakfast and the other just before supper —and these serve as the main guide in regulating the diet. Their twenty-four hour urine output is collected in four periods, morning, afternoon, evening and night. These specimens are examined separately, and the patients are taught to continue doing this after they return home. They are given extensive instruction about their disease, including information to enable them to recognize coma and shock. The symptoms of insulin reaction may differ so widely in different people that I purposely give patients a mild insulin reaction while they are in the hospital. This can be promptly controlled and it teaches them more about the recognition of insulin reaction than hours of instruction or reading. Also, if they later get a reaction, they are not so frightened and not so apt to lose their heads.

There are various methods for determining the amount of food a diabetic should have. In my opinion, the many methods and formulas for evaluating separately many of the factors which influence a person's metabolism, and for predicting with a high degree of precision his fuel requirements are for the most part unnecessarily elaborate. Such accuracy in the prescription of the food presupposes similar accuracy in the preparation and consumption, conditions which are next to impossible of attainment except with the aid of a specially equipped diet kitchen and an ideal patient under ideal conditions. Furthermore, people of the same age and

weight and in the same occupational category may differ widely in their food requirements.

My practice is to pick from the diets on the diet card the one roughly estimated to fit the case, and start the patient on it. From then on, the patient's sense of well-being, his strength and weight, and his appetite are the sign posts which govern the raising, lowering and adjustment of food intake. Bear in mind that each of these diets provides for adequate amounts and proportions of food materials. This may seem too simple to be true, but it works, and has proved successful in the hands of men whose experience is much greater than mine.

When beginning treatment, I do not try to determine the patient's carbohydrate tolerance. After the patient has been on his diet for a day or two, and some idea of the blood sugar level has been obtained, insulin is begun, if necessary, and continued in sufficient amount to maintain the blood sugar between 100 to 170. The diet is changed from time to time, if and when necessary, according to the principles laid down above. There is no exact rule for pre-determining the correct insulin dose. This must be discovered by trial and error.

There are exceptions to the above procedure. For instance, I am not referring to coma cases, which are acute emergencies, and must be dealt with quickly according to a different plan. Uncomplicated cases, hospitalized for regulation, are usually started on 10 to 20 units of insulin, and gradually worked up to the correct maintenance dose. Special care and watchfulness must be used in raising the insulin dosage, especially when protamine insulin is used, since the blood sugar curve usually has a fashion of remaining near the same high level for several days after treatment has been begun, and then suddenly breaking to a lower level, perhaps to shock levels.

For the past three years, I have used protamine zinc insulin almost entirely. This preparation is a mixture of regular insulin with a very simple fish sperm protein. The difference of its action from regular insulin is due to its slower absorption. The insulin in the mixture is slowly liberated from the protein, so that it is not completely removed from the point of injection for from twenty-four to thirty-six hours. This steady stream of insulin which pours into the system during the whole twenty-four hours of the day simulates the way in which the pancreas supplies insulin in normal health. The total amount of insulin required for twenty-four hours may be given in one dose, when protamine insulin is used. Shock from protamine insulin differs from regular insulin shock owing to the different speed and manner in which it is absorbed. One dose of orange juice or sugar usually will completely and permanently relieve shock from regular insulin, but may have to be repeated several times in protamine insulin shock.

It is not wise to change arbitrarily to protamine people who have been successfully using regular insulin for a long time, especially if they are old. If they are doing well and are thoroughly accustomed to the action of regular insulin, the change may be stormy. Old diabetics find it especially hard to readjust their routine. I think the patient should make the change in the hospital, especially if he is old. When changing from regular to protamine insulin, I usually give in one dose once per 24 hours three-fourths of the number of units of regular insulin the patient has been taking, and work up or down from that.

I have said nothing about diabetic surgery, which is a big field in itself. A large book could be written on the handling of the complications of this disease. Diabetics can now be carried through almost any surgical procedure almost as safely as non-diabetics. Diabetic women can now have children with reasonable safety. The prognosis in surgery on gangrenous and infected diabetic extremities is not nearly so dark now as formerly.

The final thought I wish to leave is that whoever treats diabetes should make sure he is willing to take the time necessary to do it right. It requires a tremendous amount of tedious detail work. The diabetic who knows most about his disease gets along best. If the doctor is too hurried or impatient, the patient suffers. Your efforts are largely lost if the patient does not thoroughly understand what to do after he is removed from your direct supervision.

Because tuberculosis is found 13.5 times as often in families of known cases as in the general population, we should look for tuberculosis in the homes of persons who have it. Crusader, May, 1940.

SULFAPYRIDINE THERAPY IN LOBAR PNEUMONIA, WITH SPECIAL ATTENTION TO COMPLICATIONS

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This paper is based upon a series of forty-one cases of lobar pneumonia treated with sulfapyridine on the medical service of Watts Hospital, Durham, N. C. The series extends from the time the drug was first introduced here on January 27, 1939, to March 1, 1940. The purpose is to summarize the complications encountered, dosage required, and the success of the treatment.

Only those cases were selected where the diagnosis of lobar pneumonia was confirmed by x-ray. Attention was directed to the type of organism, but the survey includes the cases where no sputum was obtained, or where mixed organisms were found. In several cases other forms of therapy—namely, sulfanilamide and serum—were employed, but these cases are included, since in a measure they serve to act as controls upon the effectiveness of this form of therapy.

Attention is directed primarily to the amount of sulfapyridine prescribed and to the time interval between administration and the fall of temperature to normal. Consideration is given also to any effect of the drug on the blood, specifically the hemoglobin and the white count. Special interest is directed to the atypical cases, and those where concurrent medical conditions were known to exist.

The ages of the patients ranged from thirteen to sixty-six years. The series includes 2 deaths and one case in which sulfapyridine was apparently ineffective.

The average dose administered was 16.5 Gm. per patient. The greatest amount given was 43 Gm.; the smallest effective dose was 7 Gm. In 8 cases cures were effected with 10 Gm. or less. In 12 cases the temperature fell to normal in twelve hours and remained so.

A positive blood culture was obtained in only one case, and this patient died. All other blood cultures were reported negative. Blood sulfapyridine level determinations were not made frequently enough to be of any conclusive value.

As to the infectious agents, pneumococci were isolated and typed in 23 cases. Types I and II were most prevalent, each being present in 7 cases.

Two patients in this series expired during the course of active specific treatment.

Case 1. A white male, aged forty-two, was moribund upon admission. There was a history of unsuccessful treatment in a nearby city during an eleven day course of illness. Major portions of both lungs were involved with lobar distribution as indicated by x-ray and physical findings. Blood culture was positive for pneumococci Type VII. Fourteen grams of sulfapyridine were given orally in a twenty-four hour hospital course with fatal termination.

Case 2. A white male, aged fifty-nine, was admitted, with a diagnosis of lobar pneumonia. Physical examination and x-ray findings showed that practically the entire right lung was involved. The sputum was found to contain pneumococci Type XVII. The leukocyte count was 2,950, with 40 per cent polymorphonuclear cells. The admission temperature was 105°F. The patient could not give an accurate history as to the duration of the illness. There was a history of chronic alcoholism over a long period of time, and the patient was intoxicated at the time of admission. The dosage of sulfapyridine was 9½ Gm. during the forty hour hospital period. The patient died.

Complications arising in connection with administration of sulfapyridine in this series have been observed and listed. In some of the cases opinion varied as to whether these complications were coincidental or directly based on an untoward sulfapyridine action.

Nausea was noted in all but a few cases. In no case was it severe enough to cause omission of sufficient dosage. Even in cases where records indicated that the patient had vomited the greater portion of each dose over a one or two day period, the therapeutic result did not seem to be altered. The administration of barbiturates by rectum one hour before each dose during the periods of nausea and vomiting was found to be helpful, especially if the sulfapyridine tablets were pulverized and given in one ounce of liquid.

We emphasize the following cases in order to clarify the more common gastro-intestinal complications.

Case 1. A white male, aged forty-four, came in with a history of gastro-intestinal disturbances of two days' duration, with nausea, vomiting, and epigastric pain. There were no respiratory complaints. There was marked tenderness of the entire right abdomen, and some rigidity. Physical findings in the chest were not definite. The temperature was 100°; the leukocyte count was 13,000, polymorphonuclears 90 per cent. An x-ray diagnosis of lobar pneumonia involving the right upper lobe was made. The temperature increased in the next twenty-four hours to 105°. Sulfapyridine therapy was begun and there was a typical drop in temperature within eighteen hours. A total of 8½ Gm. of sulfapyridine were given. X-ray showed clearing, as did the blood picture. A gastro-intestinal x-ray series made later was negative. The administration of sulfapyridine in this instance was entirely by the oral route, and the gastro-intestinal symptoms subsided progressively during the course of the treatment.

Case 2. A white male, aged sixty-three, was admitted to the hospital with right middle lobe pneumonia of thirty-six hours' duration. Sulfapyridine therapy was begun immediately, with excellent therapeutic result. Extreme nausea, vomiting, and marked gaseous distention occurred abruptly on the third hospital day. With the appearance of these symptoms there was a return of the leukocytosis, which had disappeared under the influence of specific therapy. Sulfapyridine therapy was continued, and the symptoms subsided in thirty-six hours.

Temperature curves were not in every case typical but this did not indicate a poor therapeutic result.

Case 1. This patient presented a classical picture of right middle lobe pneumonia of thirty-six hours' duration, with a pseudo-crisis at twelve hours. A return of the original febrile picture occurred and was maintained for over twenty-four hours; then there was a fall in temperature. The cause of this was not ascertained, but it did not affect the final therapeutic result, which was excellent.

Case 2. This showed a classical picture of lower right lobe pneumonia of three days' duration. Sulfapyridine therapy was begun at once upon admission, and seventy-two hours elapsed before the febrile crisis. This crisis was real, and the final result was excellent. A total of 16½ Gm. of sulfapyridine was given.

Case 3. There was a typical picture of lobar pneumonia, with a satisfactory twelve-hour response to sulfapyridine. A low grade temperature was present from the fourth to the twelfth day, inclusive. The patient was cured. No explanation for the subsequent temperature was found.

Variations in the blood picture were studied and an attempt has been made to classify them. In the cases where sulfapyridine response was typical, the leukocytosis and high percentage of polymorphonuclear cells dropped within twenty-four to seventy-two hours. Leukopenia occurring during active treatment was noted in one instance.

Case 1. A white female, aged thirty-three, gave an indefinite history of upper respiratory infection for four days preceding admission. Physical findings on admission were not definite. The temperature was 100.8°. An x-ray diagnosis of right lobar pneumonia was made. The leukocyte count was 20,400, with 95 per cent polymorphonuclears, at the first examination. On the fourth day the white cell count was 4,450, and patient was irrational and very toxemic in appearance. Sulfapyridine was continued, with a reduction in the dosage to 11 Gm. per day. The patient recovered. The white cell count increased to 8,000 before treatment was finished. No transfusions were given in this instance. The patient received a total of 18½ Gm. of sulfapyridine.

Complications in the urinary tract were observed during the course of treatment in three cases.

Case 1. A white female, aged forty-three, was admitted with early right middle lobe pneumonia. The usual result was observed in giving a total of 16½ Gm. of sulfapyridine. Many leukocytes (with clumps) were noted in the urine on the initial examination, and this finding persisted during the course of active treatment. The patient was symptomless and afebrile on dismissal and the urine was clear.

Case 2. A white male, aged forty-six, came into the hospital with an extensive involvement of the left lung with lobar distribution. Type II pneumococci were isolated and identified in the initial sputum examination. The patient was jaundiced on admission and was desperately ill. The

icterus index was 70. The urine showed a definite trace of albumin, a few leukocytes, and an occasional hyaline cast on admission, and these findings remained practically the same throughout the course of the illness. The response to 22½ Gm. of sulfapyridine was typical. Treatment was stopped on the fifth day, and a rise of temperature and reappearance of the leukocytosis were noted on the eighth day. This required reinstitution of specific treatment, with the administration of 21 Gm. of sulfapyridine. On the thirteenth day the patient developed anuria for eighteen hours. He had been afebrile for thirty-six hours following the second crisis. Sulfapyridine was then stopped and intravenous fluids were administered, with subsequent disappearance of the untoward symptoms. The blood chemistry was not altered, and the urine did not show subsequent infection. A total of 43½ Gm. of sulfapyridine were given over a twelve day period.

Case 3. This case of urinary infection was noted in a case of lobar pneumonia with a leukopenia. On the third and fourth days of treatment the patient had many erythrocytes in the urine. Many leukocytes were present in both specimens. Low back pain was noted at the same time. These findings cleared without special treatment or management. Sulfapyridine was continued to 18½ Gm. with no recurrence of symptoms.

Resistance to sulfapyridine therapy was noted in three cases in our series.

Case 1. A white female, aged thirty-eight, ran a classical twenty-four hour course. She had a left lower lobe pneumonia, and the sputum showed Type I pneumococci. One hundred and twenty grains of sulfanilamide were given in the first twenty-four hours of the hospital course, and 80,000 units of Type I serum were given by the end of the first day. The temperature dropped to 101° and remained there for the ensuing forty-eight hours. At the end of this time sulfapyridine therapy was begun. The temperature receded to 100° after 7½ Gm. of sulfapyridine. After this no medication was given for a seven day period, during which the temperature was 100° to 101°. X-ray diagnosis at this time was bilateral bronchopneumonia. The temperature dropped to normal and the patient recovered.

Case 2. A white male, aged fifteen, was admitted with left upper lobe pneumonia of twenty-four hours' duration. The sputum showed pneumococci, Type I. This patient was treated with 15½ Gm. of sulfapyridine over a four day period. There was no fall in temperature until this medication was discontinued. The percentage of polymorphonuclears was reduced somewhat during the course of the treatment, but not to the degree usual in these cases. On the fifth day (the day following discontinuation of specific therapy), the patient appeared very toxemic and was nauseated. A transfusion was given at this time. A series of x-ray films showed the pneumonic process resolved by the tenth day. There was no evidence of other infection.

Case 3. A white female, aged twenty, had had right lower lobe pneumonia of twelve hours' duration upon admission. The sputum was negative for pneumococci. Twenty-two grams of sulfapyridine were given over a seven day period. The temperature spiked to 100° from the fourth through the eleventh day. At the time of admission there was a suggestion of some fluid being present, and and x-ray showed an accumulation of fluid in the right lower chest. The amount increased, and on the eleventh day 500 cc. of straw-colored fluid was removed. Culture of the fluid was negative. The patient then made an uneventful recovery.

Pulmonary symptoms as indicated by physical examination and x-ray findings cleared as the lungs and leukocyte count returned to normal in most of the cases. The following are three exceptions:

Case 1. A white female, aged forty-seven, was admitted with right upper lobe pneumonia of twelve hours' duration. She had a crisis after a twenty-four hour course of sulfapyridine therapy. Subsequent x-ray findings indicated that the process was clearing, until the ninth day of treatment. An x-ray film made at this time, two days after completion of a course of 34 Gm. of sulfapyridine, showed some atelectasis. An x-ray made six days later showed that this had cleared up.

Case 2. A white male, aged twenty-three, was admitted with right middle lobe pneumonia of four days' duration. Type XI pneumococci were identified. A crisis occurred after twelve hours and a total of 9 Gm. of sulfapyridine were administered over a period of forty-eight hours. Three days

following the discontinuation of sulfapyridine therapy, x-ray films showed approximately 100 cc. of fluid in the right chest. The temperature was spiking to 100° at this time. Ten days later an x-ray film showed consolidation of the lower third of the right lung, and fluid up to the apex. The patient was afebrile at this time, and was discharged. Two Wassermann tests showed a four plus reaction. The question here was whether incomplete treatment or syphilis was the basis for the poor therapeutic result.

Case 3. A white female, aged sixty-three, was admitted with right middle lobe pneumonia of thirty-six hours' duration. After thirty-six hours of treatment, a crisis occurred. Twenty-six grams of sulfapyridine were given over a five and a half day period. From the seventh to the twelfth day the temperature rose daily to 100°. An x-ray on the eleventh day showed a collection of fluid between the middle and lower lobes on the right. The temperature dropped a few days later, and subsequent x-rays showed clearing of the process. Poor absorption of the drug may be considered as a possible cause of this complication, for this patient suffered from nausea and gaseous distention over a three day period during the course of treatment. If this supposition is true, this case is the exception rather than the rule.

Intercurrent disease is not necessarily a contra-indication for sulfapyridine therapy.

(1) *Cases with cardiac complication.*

Case A. A white female, aged sixty-six, was admitted with a history of hypertension and marked decompensation of four weeks' duration. The patient had been stuporous for three days prior to admission. The blood pressure was 240 systolic. Right lower lobe pneumonia was diagnosed by x-ray. The leukocyte count on admission was 21,200, with 94 per cent polymorphonuclears. The temperature was 104°. Twelve grams of sulfapyridine were given orally over a period of three days. The temperature came down twenty-four hours after sulfapyridine was begun. Digalen was given. The patient recovered.

Case B. A white male, aged forty-five, was admitted with lower right lobe pneumonia of approximately four days' duration. There was a history of rheumatic fever at nineteen years, with tonsillitis, rheumatism, and a mitral lesion. The mitral lesion was found on admission, but there were no signs of decompensation. Twelve grams of sulfapyridine were given over a three day period. The patient had a twelve hour temperature crisis and made a very satisfactory recovery.

(2) *Case complicated by otitis media:* A white female, aged thirteen, was admitted with lower right lobe pneumonia of approximately twenty-four hours' duration. She had had otitis media for five days, and the ear was draining profusely on admission. A culture of the drainage showed staphylococci. The sputum showed pneumococci, type I. Ten and three-fourth grams of sulfapyridine were given over a two and a half day period. There was a twenty-four hour fever crisis, and an uneventful clearing of the pneumonic process and of the otitis media.

(3) There were two cases of pneumonia complicated by lues, which are not described here. Luetic treatment was continued uninterruptedly. The patients reacted promptly to sulfapyridine.

(4) *Case complicated by pregnancy.* A white female, aged thirty, six months pregnant, entered the hospital with an uneventful prenatal record up to this time. She had lower lobe pneumonia, with a temperature of 103°, and a white cell count of 14,500, with 97 per cent polymorphonuclears, on admission. Approximately twelve hours after admission the patient developed uterine contractions. She was given 30 gr. of sulfanilamide, and eighteen hours after admission she was started on sulfapyridine therapy. She was given 11½ Gm. over a two and a half day period, with a good therapeutic result. An interesting feature was the cessation of the labor pains after thirty-six hours of sulfapyridine therapy. The patient was discharged, and was followed in the out-patient department as a prenatal case. She was readmitted at term and was delivered of a normal baby.

Summary

As a result of this study the following points seem to be established:

1. Sulfapyridine is an effective agent in treating lobar pneumonia, and appears more effective than any previous form of therapy used in this hospital.
2. The dosage need not be large, as results are equally satisfactory in those cases receiving minimal doses.
3. In only one case did the drug fail to

effect a complete cure where it was given a satisfactory trial.

4. Nausea was a persistent and expected symptom with this form of therapy. By no means should the dosage be discontinued because of this symptom. The administration of barbiturates by rectum is an effective means of allaying nausea. Sulfapyridine may be given in spite of gastro-intestinal upsets.

5. Many cases respond in twelve hours, but delay up to seventy-two hours is apparently of no significance. With one possible exception, no febrile reaction to the drug was observed in any of the cases studied.

6. In those cases where sufficient data are available, the hemoglobin and red cell recordings were not affected in a significant manner. The only case of leukopenia responded without additional therapeutic measures, and sulfapyridine therapy was continued in spite of the findings.

7. Urinary complications were not frequent and did not constitute sufficient cause for discontinuance of therapy, except in one case.

8. Resistance to sulfapyridine therapy was noted in only three cases. In two of these, treatment was complicated by other forms of therapy.

9. Pulmonary findings as indicated by x-ray and physical examination cleared up parallel with the temperature and leukocytosis.

10. Associated conditions such as hypertension, decompensation, senility, rheumatic fever, lues, and pregnancy were unaffected by the drug.

The Aim of Chemotherapy.—The aim of chemotherapy is to be able to treat diseases with chemical substances capable of selectively destroying disease promoting agents without doing serious injury to any vital part of the human organism. This will be difficult to accomplish. It may never be fully realized. Living organisms, simple and complex, microbe and man, possess certain characteristics shared in common by all living things. They have the capacity to assimilate, to grow, and to reproduce. The cycles of events characterizing these processes in microbe and in man may involve similar phenomena. The drug which affects the protoplasm of the parasitic agent may not be wholly without toxic effect on man. If it were it would be in general ineffective as a therapeutic agent. It is a matter of degree of toxicity for each. The problem is to find chemical substances which will destroy the agents of infection, in vivo, in concentrations so low as to be practically harmless for the human organism. — M. L. Crossley: Recent Advances in Chemotherapy, Science, 91:370 (April 19) 1940.

THE DIAGNOSIS AND MANAGEMENT OF CHRONIC ECZEMATOID DERMATITIS OF THE HANDS

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and

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The diagnosis and management of chronic eczematoid dermatitis of the hands is one of the most frequent problems with which the dermatologist is confronted, and often proves to be one of the most difficult. This problem also concerns the general practitioner and the practitioner of internal medicine.

Occasionally, the etiological diagnosis in a case of chronic eczematoid dermatitis of the hands is as difficult to determine as is the proper course of treatment in some of the more resistant cases. We wish, however, to stress the importance of making an etiological diagnosis, since it may mean the difference between a good and a poor prognosis, and between good and ill-directed therapy.

For purposes of a brief discussion, we will divide chronic eczematoid dermatitis of the hands into seven groups:

1. Superficial mycotic infections.
2. Eruptions of an "allergic" nature resulting from a fungus or bacterial infection. These eruptions are designated as "id" reactions.
3. Eruptions caused by external irritants such as Rhus dermatitis and occupational dermatoses.
4. Idiopathic eruptions of the hands, such as pompholyx.
5. Toxic eruptions caused by foods, drugs, etc.
6. Chronic infectious eczematoid dermatitis.
7. Eruptions of the hands which are accompanied by more or less generalized involvement.

The first step in successfully dealing with eczematoid eruptions of the hands is to obtain a thorough history, since this alone frequently leads to a diagnosis of contact dermatitis. The history should be followed by a complete and detailed examination of the patient. After the history and physical ex-

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From the Section of Dermatology and Syphilology of the Department of Medicine, Duke University School of Medicine. Read before the Section on the Practice of Medicine, Medical Society of the State of North Carolina, Pinehurst, May 14, 1940.

amination, as Wise and Wolf[1] have stated, a complete investigation of all eczematoid dermatides of the hands may embrace "atophy, allergy, immunology, mycology, biologic chemistry, serology, pharmacology and chemistry."

We shall attempt a brief discussion of the salient features of the seven groups of eczematoid dermatides of the hands.

1. The clinical appearance of superficial mycotic infections is usually quite typical. There is the white, sodden epidermis, the vesicles and bullae, and the dry, fissured, scaling areas. The nails may be involved, and, in general, any nail in a case of chronic eczematoid dermatitis of the hands which lacks luster contains fungi. It should be treated as a focus when an eruption which appears to be an "id" persists after the apparent focus has been cleared up. In all cases in which a fungus infection is suspected, microscopic examination should be done of material removed from lesions and immersed in 10 per cent potassium or sodium hydroxide. As Williams[2] has pointed out, the best specimens for microscopic examination are obtained from the periphery of the lesions, as the vesicles in the immediate vicinity may be sterile and represent "id" reactions. It is frequently necessary to have the patient clean up the areas with soaks or compresses before satisfactory microscopic examination for fungi can be done. In order to recognize the particular strain of the fungus it is necessary to culture the material on Sabouraud's or other media.

2. The group of "id" reactions is by far the most frequent explanation of eczematoid dermatides of the hands. In the dermatophytid group, one finds fungi on the feet but cannot expect to be able to demonstrate similar organisms on the hands. We feel that the trichophytin skin test should be an integral part of the examination; however, a positive test does not necessarily prove the presence of dermatophytid, since the majority of people have had fungus infections of the feet at one time or another, and will show a positive test. As Lewis, MacKee and Hopper[3] have pointed out, a negative trichophytin test in the presence of proven mycotic infection gives a poor prognosis, since this would indicate the absence of antibodies.

Ayers and Anderson[4] have suggested a method by which the presence of a dermatophytid can be definitely established. The method consists of adding serum from a person with a true dermatophytid to Sabouraud's media. This will inhibit the growth of fungi isolated from the primary lesion. Naturally, one would not expect this to hold true unless the trichophytin test were positive. Marchionini[5] has reported the value of estimating the pH concentration of the vesicular fluid. He states that true dyshidrosis fluid will turn blue litmus red, that infectious dyshidrotic fluid is amphoteric, and that dermatophytid fluid will change red litmus to blue.

It is also important to remember that a bacterial focus may produce an "id" reaction.

3. One can usually determine from the history whether or not he is dealing with a contact or occupational dermatosis. If a substance is suspected, then the patient's sensitivity to that substance should be tested by either patch, scratch or intradermal methods. Goodman[6] has stated that a contact dermatitis or a drug sensitivity cannot, as a rule, be investigated by scratch tests. He advises that the practitioner make more use of the patch test. Caution must be observed in doing sensitivity tests, for a patch test not only may induce a "flare up" of a localized dermatitis venenata, but may produce a generalized dissemination, as Sharlet[7] has pointed out. Caulfield[8] has followed individuals susceptible to poison ivy with patch tests and has observed that positive tests become negative following the intramuscular injections of poison ivy extract.

4. Occasionally, one sees a chronic eczematoid dermatitis of the hands which seems to fit into the poorly understood group known as pompholyx or dyshidrosis. These patients are usually of an unstable temperament and tend to be of the neurotic type. Sweating is

1. Wise, Fred and Wolf, Jack: Dermatophytosis and Dermatophytids With Particular Reference to the Diagnosis of Dyshidrosiform Eruptions of the Hands and Feet, Arch. Dermat. and Syphil. 34:1-14 (July) 1936.
2. Williams, C. M.: Enlarging Conception of Dermatophytosis, Arch. Dermat. and Syphil. 15:451 (April) 1927.
3. Lewis, G. M., MacKee, G. M. and Hopper, M. E.: The Trichophytin Test, Its Value as a Diagnostic Aid, Arch. Dermat and Syphil. 38:713-726 (Nov.) 1938.
4. Ayers, Samuel J. and Anderson, Nelson Paul: Inhibition of Fungi in Culture by Blood Serum from Patients with 'Phytid" Eruptions, Arch. Dermat. and Syphil. 29:537 (April) 1934.
5. Marchionini, A.: Pathogenesis and Differential Diagnosis of Dyshidrotic and Dyshidrosiform Diseases of the Hands and Feet, Dermat. Ztschr. 58:222 (May) 1930.
6. Goodman, J.: The Use of the Scratch Test in Dermatology with Special Reference to Atopic Dermatitis, New England J. Med. 219:705-709 (Nov. 3) 1938.
7. Sharlet, Herman: Routine Patch Tests, Arch. Dermat. and Syphil. 38:951 (Dec.) 1938.
8. Caulfield, A. H. W.: The Specific Diagnosis and Treatment of Poison Ivy (Rhus Toxicondendron) Dermatitis, J. Allergy, 9:535 (Sept.) 1938.

said not to be a special feature. The lesions are preceded by a sense of discomfort, but the actual lesions never itch—a fact which may be of some diagnostic value. The eruptions are symmetrical and appear without antecedent erythema. The vesicles resemble sago grains embedded in the skin and may appear scattered or in groups along the edges of the fingers and in the palms. The vesicles are said to undergo spontaneous resolution without rupture and tend to recur. Muende[9] has pointed out that these patients are usually worried and overworked. McLochlan and Brown[10] believe that approximately 75 per cent of the so-called pompholyx eruptions belong in the eczema-asthma-hay fever group. They found that frequently several members in one family showed similar eruptions. We are inclined to believe that some of the lesions called pompholyx represent "id" reactions.

5. In the recognition of eruptions produced by foods, drugs, etc., the history is of utmost importance. Suspicions should be confirmed by sensitivity tests as described under group 3. If a food is suspected, a food diary may be advisable and an elimination diet necessary.

6. Occasionally, a trivial abrasion is followed by an eczematoid dermatitis of the hands. We interpret this condition as being due to eczematogenous powers of the saprophytic organism, vegetating on the skin, and designate it as an infectious eczematoid dermatitis. Robert[11] has demonstrated the eczematogenous powers of certain strains of staphylococci cultured from secretions of eczematoid dermatitis. Ramel[12] has pointed out that frequently an occupational eczema enters a second stage after the patient has been removed from the offending substance, and he believes this to be response to the saprophytic organisms on the involved areas.

7. Eruptions of the hands which are accompanied by more or less generalized involvement such as pemphigus, erthyema multiforme, syphilis, etc., need not be discussed, since examination will usually show involvement elsewhere.

9. Muende, I.: Cheiropompholyx, Brit. J. Dermat. 46:479 (Nov.) 1934.

10. McLochlan, A. D. and Brown, W. H. Cheiropompholyx, Brit. J. Dermat. 46:457 (Nov.) 1934.

11. Robert, P.: Nature of Reaction of Eczematous Skin to Staphylococcus Toxin, Arch. Dermat. and Syphil. 175:530-538, 1937.

12. Ramel, E.: Neuropathic Eczema, Brit. J. Dermat. and Syphil. 49:307-320 (July) 1937.

Treatment

At the beginning, we would like to advise against the indiscriminate use of x-ray therapy. Too frequently, we have seen patients with severe involvement of the hands who had previously received x-ray therapy to the limit of tolerance at a time when the involvement had been minimal and when more conservative therapy would probably have been adequate. In treating conditions of the skin which are apt to recur, such as vesiculopustular eruptions of the hands, we feel that it is wise to withhold x-ray during the early stages, remembering that there may be greater need for the x-ray tolerance at a later date. We agree with MacKee[13] that the majority of cases of dermatophytosis will do better under intelligent conventional therapy than under irradiation. It is widely known that x-ray has no fungicidal properties when applied to living cultures of fungi in vitro. Jacobson[14] suggests that the clinical results from x-ray are probably due to factors of immunity generated in the tissues by the x-ray. Over-treatment with x-ray, as Hazel and Brundage[15] have pointed out, reduces the local tissue immunity until the conventional dermatological remedies are of little value. We agree that, if the condition does not subside after four to six weekly superficial x-ray treatments using one-quarter erythema doses (75 roentgen units), it is unlikely to be favorably influenced by further x-ray treatment.

It is of utmost importance to remember that treatment should not be over-vigorous, since an allergic state frequently exists. It is not uncommon to see eruptions of the hands "flare up" following intensive treatment of the feet for dermatophytosis.

We shall attempt to outline the therapeutic regime which we have used with satisfactory results in dealing with eczematoid dermatides of the hands:

1. Adequate rest, a well balanced diet, sunshine, non-competitive recreation, etc. Such general instructions are of importance, but are frequently neglected by the physician.
2. When a pyogenic element is present, a low carbohydrate diet is used.

13. MacKee, George M.: X-ray and Radium in the Treatment of Diseases of the Skin, Philadelphia: Lea and Febiger, 1938, p. 495.

14. Jacobson, H. P.: The Effects of Roentgen Ray on Fungi in Vitra, Arch. Dermat. and Syphil. 38:38 (July) 1938.

15. Hazel, O. G. and Brundage, Carl: X-Ray and Ultraviolet Light in the Treatment of Dermatophytosis, South. M. J. 31:1297-1298 (Dec.) 1938.

3. We routinely advise our patients to avoid iodides and bromides, since these substances are notorious for producing and exaggerating vesicular cutaneous eruptions.
4. Sedation in the form of barbiturates is indicated in some cases. Calcium intravenously or by mouth is frequently of value as a "skin sedative."
5. If the situation represents a contact dermatitis, the patient should be removed from that environment. Where this is not feasible, greases or other protective coverings for the skin should be used. In some cases of contact dermatitis, as in Rhus dermatitis, we attempt to desensitize the patient by injecting extracts of the offending substance. Extreme caution must be observed in the administration of these extracts, since the material produces a dermatitis venenata wherever it comes in contact with the skin of a highly sensitive individual.
6. In obscure cases, it is definitely worth while to search for foci of infection such as are presented in the sinuses, tonsils and teeth.
7. When the lesions are dirty and secondarily infected, the first principle of local treatment is the use of soaks, compresses and mechanical debridement. The results from these simple procedures are often astonishing. We usually use 1:4000 or 1:6000 dilutions of potassium permanganate for the soaks and compresses. It should be remembered that when there is a dermatophytosis of the feet, the feet, as well as the hands, should be treated.
8. Following the soaks, we advise the patient to apply Castellani's paint once or twice a day. Castellani's paint contains saturated alcoholic basic fuchsin 10 cc., 5 per cent phenol in aqueous solution, 100 cc., boric acid, 1 Gm., acetone 5 cc. and resorcin 10 Gm. The chief drawback to the use of Castellani's paint is the difficulty in its preparation. We feel, however, that it is less likely to produce "flare ups" than are many of the conventional remedies. If Whitfield's ointment is used, we feel that it should never exceed one-half U.S.P. strength.
9. In all cases of chronic eczematoid dermatitis of the hands, we advise our patients to avoid placing the hands in soap and water, as far as possible. We advise them to wear white cotton gloves, over which are placed rubber gloves, when exposing their hands to water. The hands may be cleansed with olive oil, sulphonated oils, and in some cases, a superfatted soap.
10. After the acute phase has subsided, a stimulant such as 3 per cent ichthyol or 5 per cent crude coal tar in zinc oxide ointment is indicated.
11. If the above regime does not prove efficacious, x-ray therapy is then considered.
12. We have recently treated two patients with dermatophytosis of the hands and feet with copper ionephoresis, with good results.

In summary, we would like to emphasize the following points:

1. Every person presenting a chronic eczematoid dermatitis of the hands should have a careful history and a complete physical examination, which will usually suggest and frequently make the etiological diagnosis.
2. All suspicions should, insofar as is possible, be confirmed by the various procedures, such as patch tests, etc., at one's disposal.
3. We advise against the indiscriminate use of x-ray therapy, since intelligent conservative management usually proves more efficacious.
4. A treatment regime which has proven satisfactory in our hands has been outlined.

Abstract of Discussion

Dr. Joseph A. Elliott (Charlotte): The subject that Dr. Barefoot and Dr. Callaway have presented is a very timely one. All of us who are doing dermatology see large numbers of patients with this condition. We have made it a rule in our practice when a patient comes in with a chronic eczematoid eruption of the hands to do a routine trichophytin test. We find that this test is positive in a fairly large number of cases. Now, as Dr. Barefoot has pointed out, a positive trichophytin test does not necessarily mean that the patient has a ringworm infection at that time; but it does mean that he either has or has had a ringworm infection.

A point I wish to mention, which I don't believe was brought out in the paper, is the question of reading this test. With the trichophytin test we may get what we call a positive wheal reaction in fifteen minutes or more, or we may get a delayed

reaction which occurs twenty-four, or forty-eight, or seventy-two hours after, very similar to the positive tuberculin test. These reactions indicate different groups of organisms which may be present. A negative test is strong evidence that the eruption is not being produced by a fungus infection, and in many of those instances it is produced by some form of contact. I think next to ringworm infection, contact dermatitis infection is perhaps the most common.

The patch test is a very valuable one in determining the etiological cause. Dr. Barefoot has mentioned the precautions to be taken during the patch test, and I also would like to emphasize that. We have for the past year been treating the cases produced by ringworm with copper ionephoresis, which Dr. Barefoot said he used in two cases. From May of last year until the present time we have treated 114 new cases and a fairly large number of old cases by this method. While we have some doubt as to the actual number of cases we have cured, we are convinced that this is by far the best method of treating this type of infection.

The "ids" with ringworm are common, and I think Dr. Barefoot has covered that subject rather thoroughly. The "ids" from bacteria are not common—the so-called bacterial "ids." But we do see an occasional case of bacterial "id" in which the patient has numerous pus "ids" situated on the palms of hands or soles of the feet. On culture these pustules are negative. It is necessary to find the focus of infection in order to get rid of this infection. However, in some patients we are unable to do so. In a recent case we obtained an unusual organism from a stool culture; and by giving that patient vaccine produced from this organism we were able to cure the patient. This condition is very similar to a pustulosis.

There is only one thing which I wish to add to Dr. Barefoot's and Dr. Callaway's paper. So far as wet compresses are concerned, I think that a dilution of copper ionephoresis is probably as efficient as potassium permanganate, and most of my patients prefer that to potassium permanganate. From a therapeutic standpoint, I don't think it has any marked value over potassium permanganate.

The Complexity of the Human Organism.—In the not too distant future a definite basis may be established for an understanding of the physical and chemical processes involved in health and disease. Then, the complexity of the human organism with its delicately adjusted mechanism will be better understood and appreciated. It will be seen that man is not necessarily "the animal of the wig, the ear-trumpet, the glass eye, the porcelain teeth, the wooden leg, the silver windpipe"—"a creature that is all mended from top to bottom"—"a basketful of pestilent corruption, provided for the support and entertainment of microbes"; but instead he is "a shop of rules, a well-trussed pack, whose every parcel underwrites a law." He is a part of a great experiment. His life is like a string of many different colored beads whose beauty and usefulness depend upon the cord that binds them together in unity of pattern and purpose.—M. L. Crossley: Recent Advances in Chemotherapy, Science, 91:373 (April 19) 1940.

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There is no such thing as Mexican, White or Negro tuberculosis. The infection is passed from one race to another. No matter what his race, a person with tuberculosis is, first of all a human being, and, next a potential spreader of the trouble to others in the community. Health Crusader, Apr. 1940.

EXPERIENCES WITH HISTAMINASE (TORANTIL): A Preliminary Report

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CHARLOTTE

We have recently witnessed phenomenal advances in drug therapy. A drug hardly gains a place in the sun before it is replaced by another more efficient and less toxic preparation. The new drugs of today are not so much of an unknown quantity as in former years; for careful research to determine its toxicity and considerable clinical experience are now necessary before a new preparation is released to the profession. However, it is only after prolonged clinical trial that we are able to arrive at the proper indications and, just as important, the proper limitations of each drug.

The drug I wish to discuss today, histaminase, was released after four years of clinical research and investigation in December, 1939, under the trade name of Torantil by the Winthrop Chemical Company. Histaminase has been suggested for the treatment of many varied conditions, chiefly for those of an allergic nature. At the present time it is difficult to separate the chaff from the wheat, and I realize that an attempt to evaluate the reports of others and to record my own limited experience might be somewhat premature. Therefore, I should like to designate this discussion as a preliminary report.

In order to understand the action of histaminase, it is necessary to review briefly the physiological action of its natural antagonist, histamine. I shall mention only the salient points, since this report is primarily clinical. Histamine is derived from histidine, one of the essential amino acids, and is present in minute quantities in the living cell. Although histamine is a normal constituent of the tissues and fluids of the body, and stimulates certain physiologic functions, its presence in excess of normal requirements gives rise to toxic manifestations. According to Best[1], histamine is not released from the cell as long as the cell membrane remains intact. However, it appears that a

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1. Best, C. H.; Dale, H. H.; Dudley, H. W.; and Thorpe, W. V.: The Nature of the Vasodilator Constituents of Certain Tissue Extracts, J. Physiol. 62:397 (Mar. 15) 1927.

slight injury to the cell from some physical stimulus or allergen (antigen) may release histamine into the blood stream and extracellular fluids in abnormal quantities to produce either local or systemic reactions. Its local effects may be demonstrated by injecting a weak solution of histamine intradermally. It will produce a response characterized by local erythema, and an exudation of fluid with urticarial formation. This is presumbably due to capillary paralysis and to increased permeability of the walls of the minute skin vessels. When histamine is injected subcutaneously, it may cause headache, vertigo, flushing of the face, urticaria, a fall in blood pressure, and at times a clinical picture closely resembling anaphylactic shock. It is also a powerful gastric secretagogue, and is used as a stimulus to obtain the maximal hydrochloric acid production in performing gastric analyses.

Evidence has accumulated to support the theory that certain allergic manifestations, and other conditions may be directly or indirectly concerned with the abnormal release of histamine or histamine-like substances. Fortunately, nature has endowed us with an elaborate mechanism of chemical and hormonal checks and balances, with agents which are capable of inactivating harmful substances. In 1915, Eustis[2] discovered an enzyme in the liver which would neutralize histamine. In 1930, Best and McHenry[3] demonstrated substances which would neutralize histamine in the blood, muscles, spleen, adrenals, lungs, kidneys, and small intestines. They showed that its action was specific for histamine, and designated the substance histaminase. It seems likely that when the amount of histaminase present in the body is insufficient to neutralize the histamine split off from proteins, or when there is an excess of histamine as a result of antigen-antibody union such as occurs in sensitized patients, allergic symptoms develop. Under these circumstances, the administration of supplemental amounts of histaminase seems indicated.

Histaminase has been employed in the following conditions: Physical allergy, serum sickness, insulin sensitivity, chronic urticaria, allergic rhinitis, vascular headaches, asthma, hay fever, peptic ulcer, chronic ulcerative colitis, migraine, Meniere's disease, allergic purpura, childhood eczema, contact dermatitis, acne, burns. It is probably safe to state that success has attended its use in the first six conditions listed. In the other conditions, experience has been either too limited to warrant conclusions or the investigators have disagreed regarding its effectiveness.

Excellent experimental evidence is available that tissue injury by physical, thermal and chemical agents is followed by an abnormal release of histamine. The value of histaminase in the treatment of physical allergy seems to be well established. By physical allergy is meant those conditions in which patients are unusually susceptible to the effects of cold, heat, and light. The readily recognizable cases of hypersusceptibility to cold are supposed to be quite rare, but I think many of us will recall patients who complained that exposure to cold would cause a generalized pruritis and possibly an urticaria. These patients may represent cases of cold allergy of a mild character. I would like to give briefly the histories of two patients who suffered from hypersusceptibility to cold and who were successfully treated with histaminase. These cases were reported in detail in a recent issue of the *Journal of the American Medical Association*[4].

A woman, aged sixty-eight years, was first seen in September, 1938. She had enjoyed unusually good health until February of the same year. At this time, while she was kneading dough with cold milk, her fingers and hands became painful and swollen so that the hands could not be closed. The pain and color changes disappeared after a few minutes, but the localized edema persisted for six hours. Since this first experience, immersion of the hands in cold water or exposure to cold had produced similar reactions. Cold air would produce paresthesiae of the face and occasional edema of the lips and eyelids. Cold drinks would cause an irritative cough and swelling of the lips and tongue so that speech was difficult. She was careful never to remove her dental plates from cold water because of the swelling of the gums which resulted when the teeth were placed in her mouth. For months she had taken olive oil baths. It was necessary to heat the bed clothes before she retired to prevent a generalized pruritis. There was no history of pollen sensitivity, food or drug

2. Eustis, A. C.: Biochem. Bull. 4:97, 1915.

3. Best, C. H. and McHenry, E. W.: Histamine, Physiol. Rev. 11:371-477 (Oct.) 1931.

4. Baker, T. W.: Histaminase in the Treatment of Cold Allergy, J. A. M. A. 114:1059-1062 (Mar. 23) 1940.

idiosyncrasies, or other allergic manifestations.

The patient was remarkably active and alert for her years. The physical examination was essentially negative except for a moderate degree of hypertension. The routine laboratory procedures, including serological reactions of the blood, urinalysis, and complete blood count, were all normal.

The diagnosis of hypersusceptibility to cold was readily confirmed by a simple test. Cold water from a faucet was allowed to run over the hands and forearms for about one minute. Within two minutes, the hands and forearms became very red and were quite painful and swollen, the changes being sharply confined to the immersed parts. The patient complained of a severe headache and palpitation, slight edema and pruritis of the lips. These phenomena all disappeared after ten minutes except for the localized edema, which persisted for twenty-four hours. The standard test for cold sensitivity proposed by Horton and Roth was strongly positive.

The patient was given fifteen units, or three tablets, of histaminase daily by mouth for five weeks. In addition to this, a method of desensitization to cold was carried out by having the patient immerse the hands in water at 10 degrees C. for one minute twice daily; during the second week the time of immersion was increased to two minutes twice daily, and so on until the fifth week, when the hands were immersed for five minutes twice daily. The patient was instructed not to increase the time of immersion if severe reactions occurred. The results of treatment were most gratifying. It became possible for her to use cold water indiscriminately, and a recent letter states that the patient is enjoying excellent health and no longer fears exposure to cold.

The second case was similar in many respects, and I shall, therefore, not relate it in detail:

A woman, aged twenty-six years, had usually enjoyed excellent health. In the summer of 1932 during very hot weather, she had allowed water from melting ice to drop on her face for several minutes. Within a short while she noticed edema of the face, accompanied by a stinging sensation. Shortly after this incident, she observed swelling and pallor of the hands when she held a glass containing a cold drink. At times merely placing her hands in the refrigerator to remove food would cause an urticarial reaction of the hands. The following winter, exposure to cold for brief periods would cause swelling, erythema, and pruritis of the exposed parts. She avoided cold baths and swimming because they always produced a "checker-board mottled appearance of the skin". The symptoms had persisted for seven years before treatment was begun. Physical examination was negative. Treatment was essentially the same as in the first case. Again excellent results were obtained, so that it is now possible for her to handle ice and to disregard cold.

The cases of cold allergy reported by Horton, Roth, and Brown[5] of the Mayo Clinic are very enlightening and should be read in detail by those who are interested in this subject. Their observations on gastric acidity after immersion of the hands in cold water show an almost identical increase in the hydrochloric acid curve to that observed in the same individuals after the standard histamine injection for gastric analysis.

Histaminase appears to be effective also in cases of localized edema resulting from heat allergy. Vaisberg[6] has recently reported two such cases. One patient, an asthmatic woman, had painful edematous swelling of the ankles and calves during hot weather only. The second patient spent much time near the oven, and had noted for many years that the heat would induce painful swelling of her forearms. The administration of histaminase gave complete relief in both cases. Goodson[7] has suggested that extreme sensitivity of the skin to light may also be due to histamine activity.

Foshay and Hagebusch[8] have met with considerable success in the treatment of serum sickness with histaminase. In 18 of 20 patients the symptoms were relieved within seven to thirty-six hours. The pa-

5. (a) Horton, B. T.: Cold Allergy. Proc. Staff Meet., Mayo Clin. 2:276-277 (Nov. 23) 1927.
   (b) Horton, B. T. and Brown, G. E.: Histamine-like Effects on Gastric Acidity Due to Cold, Ibid. 7:367-371 (June) 1932.
   (c) Horton, B. T., Brown, G. E., and Roth, Grace: Hypersensitiveness to Cold with Local and Systemic Manifestations of a Histamine-like Character: Its Amenability to Treatment, J. A. M. A. 107:1263-1269 (Oct. 17) 1936.
   (d) Horton, B. T. and Roth, Grace: Collapse while Swimming: The Most Dangerous Consequence of Hypersensitiveness to Cold, Proc. Staff Meet., Mayo Clinic, 12:7-11 (Jan. 6) 1937.
   (e) Roth, Grace and Horton, B. T.: Hypersensitiveness to Cold: Treatment with Histamine and Histaminase: Report of Case, Ibid. 12:129-134 (Mar. 3) 1937.
6. Vaisberg, M.: Histaminase in the Treatment of Physical (Heat) Allergy and Some Other Conditions. Report of 5 cases. New York State J. Med. 39:2199 (Dec.) 1939.
7. Goodson, W. H.: Physical Allergy, Proc. Staff Meet., Mayo Clin. 13:500-504 (Aug. 10) 1938.
8. Foshay, Lee, and Hagebusch, O. E.: Histaminase in Serum Sickness, J. A. M. A. 112:2398-2402 (June 10) 1939.

tients exhibited generalized urticaria, severe itching, arthralgias, edema of the lips and eyes, etc. They believe that the intramuscular administration of histaminase is more effective than oral medication. They suggest its use as a prophylaxis in the prevention of serum sickness and reactions which may follow the administration of antitoxins.

Roth and Rynearson[9] obtained beneficial results with the use of histaminase in the treatment of local allergic manifestations to insulin. Since the introduction of protamine zinc insulin, we have been impressed with the fact that a red, hard, tender, itchy area not infrequently develops at the site of injection and may last for several days. These workers used histaminase in 12 such cases, reporting dramatic relief in some and failures in others. They thought their failures could be attributed to a lack of uniformity in the potency of the drug which newer developments in its manufacture have eliminated. Histaminase has also proved to be of value in preventing local reactions in the occasional patient who is sensitive to liver extract.

Prickman[10] is enthusiastic over the results obtained with histaminase in the treatment of a large number of patients with allergic rhinitis. Adelsberger[11] and Forman[12] report encouraging results, while the experience of a few investigators has been disappointing. Prickman[10] says that disappointing results frequently occur in those cases in which the infectious factor predominates.

One of the promising fields for histaminase therapy appears to be those cases in which chronic, recurring urticaria and angioneurotic edema of undetermined origin are the principal manifestations of the allergic state. These cases have usually run the gauntlet of therapeutic measures without relief. Laymon and Cumming[13] report that approximately 60 per cent of their cases were clinically cured with histaminase, 10 per cent improved, and failures occurred in 30 per cent of the cases. However, the number of cases reported is too small to reach satisfactory conclusions. Dr. Graham Reid, who will discuss this paper, has had considerable experience with this type of case and will give us his results with histaminase.

I hesitate to discuss the treatment of hay fever and asthma with this drug, as the reports are quite conflicting. At a recent meeting of the American College of Physicians, I gathered that the consensus of opinion was that results had been somewhat disappointing, but that it may prove to be a valuable adjunct in the treatment of these conditions.

In 1939 Horton, McLean, and Craig[14] reported a new syndrome of vascular headache. They described it as an excruciating and incapacitating headache, limited to one side of the head and involving the eye, temple, neck, and often the face. The headache is accompanied by phenomena of vasodilation, such as prominence of the temporal vessels, lacrimation and engorgement of the soft tissues of the involved eye, and flushing of one side of the face. The usual scotoma and gastro-intestinal upsets of migraine were not present. The attacks occurred frequently, usually lasting from fifteen minutes to two hours, and in most cases occurred with almost clock-like regularity at night. This type of headache could be induced in these individuals by an injection of histamine and could be relieved by the intravenous administration of adrenalin. Their patients were gradually desensitized to histamine and excellent results were obtained. While the authors had not employed histaminase in the treatment of this type of headache, it seems a logical suggestion.

I have recently observed a case of severe so-called ophthalmic migraine which presented similar features and which was completely relieved by histaminase. The patient is a male laboratory technician, who had suffered with headaches for ten years. These headaches were preceded by scotoma, but there were no associated gastro-intestinal upsets. They were always one-sided, centering in or over one eye, excruciating in character, and accompanied by a tingling in the fingers of the opposite side. Another unusual feature was the presence of an urticarial spot which appeared on the side of

9. Roth, Grace M. and Rynearson, E. H.: The Use of Histamine and Histaminase in the Treatment of Allergic Reactions to Insulin, Proc. Staff Meet., Mayo Clin. 14: 353-358 (June 7) 1939.

10. (a) Prickman, L. E.: Personal communication.
(b) Prickman, L. E.; Lillie, H. I.; Roth, G. M.; and Fleming, R. G.: Results of the Use of Extract of the Intestinal Mucosa in the Treatment of Vasomotor Rhinitis, Ann. Int. Med. 13:2235 (June) 1940.

11. Adelsberger, L.: Intestinal Extracts in Allergic Diseases, Fortschr. d. Therap. 13:568 (Oct.) 1937.

12. Forman, J.: The Use of Histaminase in the Treatment of Various Allergic Manifestations, Ohio State M. J. 36:56 (Jan.) 1940.

13. Laymon, C. W. and Cumming, H.: J. Invest. Dermatol. 2:301 (Dec.) 1939.

14. Horton, B. T.; MacLean, A. R.; and Craig, W. McK.: A New Syndrome of Vascular Headache; Results of Treatment with Histamine: Preliminary Report, Proc. Staff Meet., Mayo Clin. 14:257-261 (April 26) 1939.

the nose corresponding to the side of the head involved. The headache had almost always occurred on Thursday afternoon for several years. During the past six months he has taken 20 units of histaminase daily. As an experiment, he omitted the histaminase on one occasion for several days before the anticipated time of headache. He says the scotoma recurred but that he was able to abort the headache by dissolving several tablets of histaminase and taking them immediately.

I have used histaminase in several cases of migraine of moderate severity which had not responded to ergotamine tartrate, but the irregularity of the seizures and the presence of associated neurogenic factors make the interpretation most difficult. I do not wish in the least to imply that histaminase is the answer to the garden variety of migraine, but it may offer hope in such cases of so-called vascular or ophthalmic migraine.

There are sporadic reports, mostly in the German literature, of encouraging results in the treatment of chronic ulcerative colitis with histaminase on the assumption that this distressing condition may be allergic in nature. These reports need further confirmation.

It was logical that the relation of histamine to the occurrence of peptic ulcer should be investigated, since maximal hydrochloric acid production occurs with histamine stimulation. Earlier work by Atkinson and Ivy[15] did not indicate that the gastric secretory response produced by histamine was inhibited by histaminase. However, Moldenschardt[16] showed that gastric acidity in cases of peptic ulcer is reduced about 50 per cent after eight to ten days of treatment with histaminase. The very recent work of Roth and Horton[17] on the physiological effects of histaminase on gastric secretion is most interesting. These workers found that the introduction of histaminase into the duodenum by tube practically abolished the rise in gastric acidity which is usually observed after a subcutaneous injection of histamine. In other cases, histaminase was injected intramuscularly thirty minutes before a subcutaneous injection of histamine, and again the usual rise in the gastric acids did not occur. In addition, the systemic effects of histamine were apparently eliminated. They feel that they have definite physiological evidence that histaminase administered to man inhibits the action of histamine on gastric secretions. Moldenschardt[16], Erklentz[18] and others report good results with histaminase in the treatment of both gastric and duodenal ulcers. Because of the notorious difficulty in interpreting any type of therapy in peptic ulcer, these reports can only be evaluated by describing them as interesting, perhaps promising, and, we hope, a step in the right direction. It needs much confirmation and a tremendous body of clinical trial before any judgment can be reached.

I have never observed any evidence of toxicity from histaminase, and a careful search of the literature reveals only one case in a foreign report in which there was a questionable reaction to this preparation[19]. In justice to histaminase, I believe that some of our disappointing results may be due to one of three reasons: (1) Insufficient dosage. (2) Some of the earlier batches of material were inert, but this has been remedied. (3) It may have been used in some conditions in which there seemed to be no plausible indication. Histaminase seems most effective in those allergic states in which urticaria, generalized pruritis, and local tissue sensitivity are the predominant features. Again let me label this paper as a preliminary report, for many of the statements herein may need revision with subsequent experience. Histaminase is distinctly not a panacea, but it may prove to be a valuable adjunct in our therapy of what might be broadly termed as the "allergic state".

Abstract of Discussion

Dr. C. Graham Reid (Charlotte): This very interesting and timely paper presented by Dr. Baker merits our careful consideration, for if, indeed, histaminase has opened up a new avenue for the treatment of allergic manifestations, then many of our perplexing and refractory clinical problems are nearing their solution. But if on the other hand, this is but another blind alley, then the sooner we appreciate this fact the better.

It is generally believed at present that the wheal in urticaria is produced either by histamine or by histamine-like substance, liberated into the tissues as the result of an allergic reaction, and while

15. Atkinson, A. J. and Ivy, A. C.: Action of Histaminase on Gastric Secretory Response to Histamine and to a Meal, Am. J. Physiol. 107:168 (Jan.) 1934.

16. Moldenschardt, H.: *Torantil, a Preparation from Intestinal Mucosa*, Med. Klin. 32:153 (Jan. 31) 1936.

17. Roth, Grace M. and Horton, B. T.: Physiologic Effects of Histaminase and Histamine, J. A. M. A. 114:522 (Feb. 10) 1940.

18. Erklentz, W. and Erklentz, B. W.: The Inactivation of *Histamine in the Body* by Torantil, Munchen med. Wchnschr. 83:17 (Jan. 3) 1936.

19. Scheef, A.: Allergic Manifestations Following the Injection of Torantil, Munchen med. Wchnschr. 83:1740 (Oct. 16) 1936.

histamine may be a normal constituent of tissues and of some fluids of the body, its presence in excess of the normal requirements may give rise either to local or systemic toxic manifestations. It seems likely that histamine may be liberated by a given cell when that cell is damaged, or by strenuous stimuli of either a chemical, physical or thermal nature. Indeed it is not uncommon that an emotional upset may initiate an attack of urticaria. The liberated histamine produces in turn capillary dilatation, increased capillary permeability with resultant edema. That the urticarial wheal is closely associated with histamine or a histamine-like substance is indicated by the work of several German investigators, who have demonstrated that the fluid of the urticarial wheal when injected into an experimental animal will produce contractions of the uterus similar to the contractions produced by the injection of histamine.

There is an abundance of evidence to indicate that histamine can be inactivated both in the experimental animal and in the human subject by a substance which has been designated as histaminase. If we accept the theory that urticarial lesions are produced by excessive liberation of histamine, then it is only a natural step to the use of its physiologic antagonist, histaminase, in the treatment of this allergic manifestation.

During the past fifteen months, seventeen cases of refractory, generalized urticaria have come under my observation, and in these the use of histaminase was tried. All of these patients had had urticaria varying from four days to six months, before they were tried on histaminase. All of them had had preliminary therapy consisting of one or more of the usual therapeutic efforts, such as the use of adrenalin, hematherapy, non-specific desensitization with histamine acid phosphate or various types of diet such as low sodium and high potassium, without evidence of improvement. None of these patients received any additional therapy while the use of histaminase was being tried.

In the brief time allotted for this discussion, it is not possible to go into each one of these cases in detail. However, in nine cases satisfactory results were obtained, and I consider that the clinical improvement was clear-cut enough to believe that the use of histaminase played a definite part in the symptomatic improvement. In three cases the response was questionable. Five cases showed no improvement after adequate trials on the drug.

In urticaria periods of exacerbation and quiescence are seen frequently, even without any medication. It is exceedingly difficult to establish any control cases, as the course of urticaria is so variable. Therefore, while in this very small number of cases the use of histaminase appears to be of some value, I feel that only through large numbers of clinical cases, carefully controlled and skillfully interpreted, may we arrive at a sound basis for our judgment of the efficacy of histaminase in the treatment of this particular type of allergic manifestation.

The Patient and His Background. — Skilled physicians, gifted with peculiar insight into human nature, can often estimate a personality with remarkable accuracy in a few minutes or even seconds, but in general the more a doctor knows of his patient's background the greater advantage he has in handling the case. That is the great advantage which the general practitioner has always possessed and still possesses.—Peabody, Francis W.: Doctor and Patient, New York, The Macmillan Company, 1939.

ANOTHER GOITER REGION

RODERIC O. JONES, M.D., D.N.B.

BURNSVILLE

Maps outlining the goiter districts of the United States have failed to indicate any wide prevalence of simple goiter in North Carolina. However, in Yancey County, North Carolina, a thyroid survey has shown a very high incidence of simple goiter in the school children. It is of interest to note that this county has an average altitude of 3,000 feet. The thyroid survey was made during the months of January and February, 1940, in the schools of Yancey County, following the procedure outlined by Olesen in Public Health Report No. 192.

A total of 1411 school children in the fourth through the eleventh grades were examined, and 56.6 per cent of this number were found to have simple goiters. This high percentage compares with results of surveys made in known goiter regions such as Michigan and Ohio, and the mountains of Tennessee. The number of children examined in this surgery is very small compared to other surveys, but this number represents 10 per cent of the total population of the county. Of the 799 children who were found to have simple goiter, 69 per cent had type 1, or slight enlargement of the thyroid; 26 per cent had type 2, or moderate enlargement; and 5 per cent had type 3, or marked enlargement of the gland. There were three children who had a nodular rather than a smooth goiter.

The incidence of thyroid enlargement in the female was found to increase with age up to the age of seventeen, where the incidence was 72 per cent. Among the males in the group the incidence reached a peak at the age of thirteen, and then decreased slightly. The distribution of simple goiter according to age and sex among the 1227 children in the age group of nine through seventeen is as follows:

		Incidence of Simple Goiter	
Age	*No. Examined*	*Male*	*Female*
9	52	33.3%	58.6%
10	104	52.8%	56.6%
11	145	42.4%	56.0%
12	184	56.0%	56.0%
13	171	60.0%	64.5%
14	166	46.3%	64.5%
15	172	58.8%	58.0%
16	136	45.0%	72.3%
17	97	53.0%	72.0%

A summary of these figures shows that 49.4 per cent of all the males examined and 62.5 per cent of all the females had simple goiter. This distribution between the sexes is compatible with the figures obtained in other similar surveys.

General adult groups are not available for study in this county, but prenatal clinic examinations made over a period of two years by the same examiner who conducted the survey among the school children showed that of 89 completed examinations, 47 of the pregnant women, or 52.8 per cent, had simple goiters.

The only figures available concerning the incidence of simple goiter in the adult males of this section are those obtained in routine examinations of soldiers in 1917 and 1918. The rate reported then for this district was 1.8 cases per thousand men. The rate for the whole state was 1.7 cases per thousand. The present survey indicates that an entirely different state of affairs exists at present.

On the assumption that simple goiter is caused by an insufficient intake of iodine, and that the iodine content of the drinking water would be a fair indication of its presence in the soil and vegetables, water samples were collected from scattered centers of population throughout Yancey County, including samples from each school where the survey was conducted. These water samples were analyzed as to iodine content by Dr. J. F. McClendon of Hahnemann Medical School, Philadelphia. He reported the following results:

Section of the County	*Iodine Content (parts per billion)*	*Percent Goiters In Schools*
Clearmont School	0.53	52.9%
Bald Creek School	0.51	60.2%
Bee Log School	0.66	67.0%
Micaville School	0.20	56.1%
Burnsville School	0.17	53.7%
Pensacola School	1.61	44.4%
Indian Creek	0.65	
Celo	0.65	
Ramsaytown	0.90	
Deyton Bend	0.13	
Relief	0.61	
Burnsville (Chlorinated)	0.23	

According to these figures the water supply of Yancey County falls far short of the standards set by the United States Treasury. To fulfill the maximum requirements the water supply should have an iodine content of at least ten parts of iodine per billion parts of water. However, the iodine content of the water in Yancey County is rather high for a goiter region, when compared with the findings of Mustard and Waring, reported in the *Journal of the American Medical Association* in 1927. They conducted a thyroid survey in Rutherford County, Tennessee, and reported that three samples of water from different sources contained .12, .14, and .16 parts of iodine per billion parts of water. Over 4,000 children were examined there, and only 9.7 per cent had enlarged thyroids.

As yet, no program has been initiated for correcting this deficiency of iodine intake other than instructions to the children that every family in the county should use iodized salt exclusively.

Summary

(1) A thyroid survey of the school children in Yancey County, North Carolina, showed that 56.6 per cent of 1411 children examined had simple goiter.

(2) Girls were found to have a higher incidence of simple goiter than boys; 62.5 per cent of the females and 49.4 per cent of the males had enlargement.

(3) Chemical analysis of the water from all sections of the county showed a marked deficiency in iodine content. The average of twelve samples analyzed was 0.57 parts of iodine per billion parts of water.

(4) Iodized salt has been advocated for every family in the county as a prophylactic measure against the occurrence of simple goiter.

Individualism.—In this age men tend to become machines, whether they wish it or not—machines whose valves are smoothed with hearts' blood. A great peril of the present day springs from this tendency, and that peril is the decay of individualism. By the term "individualism" I do not mean crankiness or fanaticism, but I mean the possession of self-reliance, and of the power and the courage to think and speak for one's self. Individualism requires tremendous energy; no lazy man can possess it. It is much easier to accept blindly other persons' thoughts, use other persons' words, and follow other persons' teachings than it is to seek the truth; it is easier to embrace a theory than to hunt a fact. Most men do not really think at all; they only think they think, and their ideas are as barnacles clinging to a vessel's keel. Such persons love proverbs, dogmas, and formulas; they bow abjectly to catchy phrases; and they accept such phrases, instead of thoughts, opinions, reasons, and facts. It is easier to use such phrases than it is to think, and the world is ruled by the formulas of shallow men.—*The Papers and Speeches of John* Chalmers DaCosta, Philadelphia, W. B. Saunders Co., 1931, p. 61.

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OCTOBER, 1940

THE A. M. A. QUESTIONNAIRES

While it is quite natural to abhor the very thought of war, and to hope and pray that our country may never have to enter another one, we must face the grim possibility of becoming involved in the desperate struggle between the totalitarian and the democratic ideologies of the world. If this should come to pass, we want to be prepared as a nation; and much of the burden of preparing must rest upon the medical profession. This does not mean that all doctors must join the army as a body; there are many other ways in which they can render service. It is, however, necessary to have full information about them in order to utilize the medical talent of the country to the best advantage. For that reason questionnaires from the A. M. A. have been sent to all the doctors in the country, and committees on preparedness have been appointed in every state.

The following letter from Dr. Webb Griffith, Chairman of the Committee on Medical Preparedness for North Carolina, needs little comment. Surely North Carolina doctors are not willing for our state to remain in its present position, at the very bottom or next to the bottom of the list in the proportion of questionnaires returned. Doubtless many have not sent in the information asked for because they have felt that to do so was equivalent to volunteering for immediate service in the army. As Dr. Griffith says, this is not the case.

North Carolina is recognized as one of the truly progressive states of the Union. Certainly her medical profession is not as backward in cooperating with its parent organization as the present situation would indicate. Let us all give Dr. Griffith our full support and cooperation.

September 30, 1940.

Dr. Wingate Johnson
Winston-Salem, N. C.

Dear Dr. Johnson:

About two months ago, the American Medical Association sent out questionnaires to all the doctors of the country, including those who are not affiliated with organized medicine. In some states the reply has been satisfactory, but in our state it has been very poor. At the last report, fewer than half of our physicians had responded.

The objects of these questionnaires are: 1. To get complete and accurate information as to the medical power of the country. 2. To classify the doctors so that those who may be called to service can be placed in positions for which they are best suited. Also, to be sure that the civilian population and the needs of industry are taken care of.

The American Medical Association is acting as a sort of clearing house for this information, which will be returned to the states. The failure to return the questionnaire was probably largely due to indifference and procrastination. Some have the idea that whatever they may state is binding, but that is not the case. The object is purely for information. It is the policy of the government to use only doctors of medicine and none of the cults. Let us merit that faith and in every way cooperate.

In case the questionnaire has been mislaid, a postal card to the American Medical Association, 535 North Dearborn Street, Chicago, will bring another one.

Until practically all these questionnaires are in, our work on Medical Preparedness will be tremendously hindered. May I ask you through the Journal to urge every member to cooperate.

Cordially yours,

F. WEBB GRIFFITH,
Chairman of the Committee on
Medical Preparedness.

TWO LETTERS FROM MR. WILLKIE

The NORTH CAROLINA MEDICAL JOURNAL expects to discuss politics only when the medical profession is vitally concerned; then it hopes to speak from an absolutely independent, non-partisan viewpoint.

For almost eight years it has been made increasingly evident that the federal administration is not friendly—to state it mildly—to the present system of American medicine, and that it has gone further and further in its attempt to regiment the medical profession under political control. Whatever his political faith, every doctor must feel a keen interest in the future of medicine. For that reason the medical profession has been anxious to know the attitude that Mr. Willkie would take toward socialized medicine. The following letter, a facsimile of which was carried in the *Rocky Mountain Medical Journal* for September, leaves no doubt as to Mr. Willkie's stand:

Colorado Springs,
August 7, 1940.

My dear Doctor—

You have asked my views on socialized medicine. I am against it. You can quote me any place on this.

Cordially yours,
(Signed) WENDELL L. WILLKIE.

Dr. Leon T. Howard,
Denver, Colorado.

The editorial that accompanies the letter says, in part: "Never before in the memory of the editors of this Journal has either a President of the United States or a candidate for that office issued such an unequivocal statement of his position on a medical policy.

"As President of the American Urological Association, Dr. Leon T. Howard of Denver obtained an interview with Mr. Willkie, while the latter was enjoying his pre-campaign vacation in Colorado Springs . . . Not only was the interview wholly satisfactory to all specialties and groups in the medical profession, but Mr. Willkie at once wrote the letter here reproduced and gave Dr. Howard full permission to reproduce it in 'any way you see fit.'

"An identical space in the October issue of this Journal will be made available to Mr. Roosevelt should he care to use it, and this will be called to his attention."*

Another letter written to Dr. F. S. Crockett, of Lafayette, Indiana, somewhat elaborates Mr. Willkie's views. Dr. Crockett, a trustee of the American Medical Association, had a personal interview with Mr. Willkie, and the letter followed the interview. Dr. Crockett sent a copy of the letter to the editor of this journal, with both his and Mr. Willkie's permission to publish it.

Rushville, Indiana,
September 12, 1940

My dear Dr. Crockett:

You have inquired of me my notions about so-called socialized medicine. I could write you pages covering my views on this subject. That seems to me to be unnecessary because I am against socialized medicine.

I appreciate that there is a social obligation which in some cases must be borne by government, to provide medical service for those who do not have financial means with which to provide it for themselves. The discharge of this obligation, however, should not require any change in the system under which men become skilled in the medical profession through competitive practice. I know of no group in American society who have contributed so much as the American doctors in skill, in charity, and in faithfulness.

If the government enters the field of medical attention to the unfortunate or in connection with the developing of housing centers, etc., it should work out such medical problems in connection thereto with the established medical organizations. Likewise, if there is additional legislation proposed regulating the practice of medicine or the rendering of medical service or in any collaboration thereto, the established medical organizations of the country should be consulted, advised, and conferred with.

You cannot place me too strongly on record as against the encroachment of the government into the functioning of the American professions.

Sincerely yours,
(Signed) WENDELL L. WILLKIE.

Dr. F. S. Crockett
209 Schultz Building
Lafayette, Indiana.

No matter what one's political convictions may be, it is refreshing to find a candidate who is honest enough and courageous enough to take a definite stand without hesitation or equivocation. These two letters should help the doctors of North Carolina, and of the United States, to decide how to vote in November.

*The **Rocky Mountain Medical Journal** for October carries a note from Stephen Early, Secretary to the President, stating that "The President's views on the subject about which you inquire were expressed in a speech delivered at the Jersey City Medical Center, Jersey City, New Jersey, on October 2, 1936, and, for your information, I have pleasure in enclosing a copy of that speech."

The **Rocky Mountain Medical Journal** then reproduces the speech of the President, but since it received wide publicity then and is rather long, this journal will omit it.

AN INTELLECTUAL FEAST
THE DUKE SYMPOSIUM

The medical profession of North Carolina is under great obligation to the Duke School of Medicine already, and this obligation is renewed annually. Every fall since 1936 a symposium on some important and timely phase of medicine has been offered the doctors of the state. With Duke's increasing prestige it has been possible to secure the nation's foremost authorities in the various branches of medicine. Each of the symposiums given so far has had a wide appeal, and the needs of the general practitioner have had primary consideration. This year's program is perhaps the best yet offered. Certainly it would be hard to get together anywhere a more distinguished array of talent than has been secured for this symposium on Diseases of Metabolism and Diseases of the Blood Forming Organs. The program is given in full in the "Bulletin Board" of this issue.

The Scriptural admonition not to forsake the assembling of ourselves together is peculiarly appropriate for the medical profession. In order to make this assembling more pleasant, the social side has not been neglected. A buffet dinner has been arranged for Friday evening, and a block of tickets for the Duke-Georgia Tech game on Saturday have been reserved for visiting doctors.

Within forty-eight hours is compressed a valuable postgraduate course. This is offered to the doctors of North Carolina absolutely gratis. Certainly the least we can do to show our gratitude for this intellectual feast is to attend it and to let our hosts of the Duke faculty know that we appreciate it.

* * * *

DR. PEPPER OF PHILADELPHIA

One of the best papers heard in North Carolina this year was presented to the Ninth District meeting at Mooresville by Dr. D. Sergeant Pepper, of Philadelphia. Dr. Pepper, who served his internship at Duke, is a member of the famous Pepper family of Philadelphia, which for at least three generations has belonged to the aristocracy of American medicine. It would be most interesting to hear a debate between Albert E. Wiggam and John B. Watson as to whether heredity or environment had more to do with shaping this young man's career.

A GENTLEMAN UNAFRAID

Among the flood of books by doctors published within the past few years, it must be admitted that only a very few could aspire to the select company of so-called classics. The one that most certainly seems destined for immortality is Hans Zinsser's delightfully whimsical autobiography, AS I REMEMBER HIM, disguised as the biography of an intimate friend, "R. S.", who had left his memoirs to be edited and revised after his death. The news that Dr. Zinsser died of leukemia on September 3 makes it plain that he had used his leisure during the last two years of his life to write this unique autobiography. He wrote without a trace of bitterness or regret, with (for a doctor) a minimum of cynicism, with a keen wit and an unfailing delicate humor. In the final chapter he writes of "R. S.":

"Something took place in his mind that he regarded as a sort of compensatory adjustment to the thought that he would soon be dead. In the prospect of death, life seemed to be given a new meaning and fresh poignancy. From now on, instead of being saddened, he found—to his delighted astonishment — that his sensitiveness to the simplest experiences, even for such things that in other years he might hardly have noticed, was infinitely enhanced.

"As the disease caught up with him R. S. felt increasingly grateful for the fact that death was coming to him with due warning and gradually. So many times in his active life he had been near sudden death by accident, violence or acute disease; and always he had thought that rapid and unexpected extinction would be most merciful. But now he was thankful that he had time to compose his spirit and to spend a last year in affectionate and actually merry association with those dear to him."

Early in the book, Dr. Zinsser stated that he was an agnostic, and that his ancestors had been agnostics for four generations. There are many who wish for him that he might have had a belief in a hereafter to sustain him in his last months of life; but the serenity with which he faced death must make every doctor proud to be a member of a profession which could give a man the sort of courage that is usually associated with religious faith.

CASE REPORTS

BOECK'S SARCOID

V. W. TAYLOR, JR., M.D., *Medical Resident, City Memorial Hospital*

WINSTON-SALEM

The patient, a colored female of thirty-two years, was admitted to the obstetrical service of the Kate Bitting Reynolds Memorial Hospital on December 1, 1939, about 11:00 p. m., with the following history: Her last menstrual period was in March, 1939, and during the past nine months she had had occasional nausea and vomiting, and had also felt what she thought were fetal movements. On the night of admission she was seized with vague abdominal pain, tachycardia, nausea and vomiting.

Past History: She had had the usual childhood diseases, and had had a tonsillectomy several years previously. The menstrual periods began at the age of fourteen, occurring every twenty-eight days and lasting four to five days until March, 1939. The patient had had three miscarriages, the last in January, 1939. They occurred during the third, fifth and sixth months of pregnancy. She had been a patient at the prenatal clinic for the past few months. She stated that she had had several Kahn tests and was told that they were negative, but that she had to take treatment for her blood because of her miscarriages. She received four intravenous treatments at the City-County Venereal Clinic. Following the fourth treatment she had a reaction, with symptoms of fainting, palpitation and itching. She came back the following week, and because of this reaction was given bismuth, intramuscularly. After this she had a reaction similar to that stated above. She was then sent to the hospital (March, 1939) and treated for paroxysmal tachycardia and arsphenamine reaction. The blood pressure at that time was 170 systolic and 110 diastolic. The patient also had quite a bit of pulmonary edema. It was at this time that she began to notice swelling in the inguinal and cervical regions.

The physical findings on the present admission were as follows: The patient was a young colored female, well developed and well nourished, apparently in good health. She did not appear to be in extreme pain, but did appear uncomfortable. There was no anemia or jaundice detectable.

A rhinitis was present, and the mucous membrane was slightly ulcerated. The lymph nodes in the cervical chains, both anteriorly and posteriorly were enlarged, discrete, firm, irregular and not tender. The nodes in the preauricular area were enlarged and not tender. The axillary nodes were enlarged, discrete and not tender. Both epitrochlear nodes were palpable, about 2 cm. in diameter, non-tender and easily movable. There were a few nodules about the size of a buckshot on both forearms, intradermally. The breasts were not distended, and no colostrum could be expressed. There were no audible changes in the lung fields.

The heart sounds were of good quality, the rate accelerated to 100-120 per minute. No murmurs were audible.

The abdomen was markedly distended and symmetrical, but not of the contour that one expects in pregnancy, being more globular in shape. There was marked tenderness in the upper right abdomen. On palpation there appeared to be a mass in the upper right quadrant, but because of the marked distention it was difficult to make out. The percussion note was dull in the upper right quadrant and tympanitic in the rest of the abdomen. The spleen was not palpable. After the patient was given enemas, a great deal of the distention disappeared.

A pelvic examination showed a multiparous introitus, fairly good perineal support, the cervix slightly soft, with a very small laceration on the left. The fundus was palpated in good position just above the symphysis pubis; the adnexa were clear. There was marked enlargement of the lymph nodes in the inguinal region and femoral canal.

There was a residual exfoliative dermatitis on the lower extremities.

The patient was not thought to be pregnant after this examination, but for records an x-ray was obtained, which showed no fetal parts. The patient was then transferred to the Medical Service.

On admission the following laboratory findings were obtained:

The urine was cloudy and straw-colored, with an acid reaction and a 1 plus reaction for albumin. The specific gravity was 1.015; the high power field was entirely covered with white blood cells. Red blood cells and epithelial cells were also present (centrifuged specimen).

A blood count showed 5,240,000 red blood cells, hemoglobin, 80 per cent; 3,800 white

blood cells, with 32 per cent lymphocytes, 1 per cent eosinophils, and 67 per cent polymorphonuclear leukocytes. The temperature was 99 F.

After the fourth hospital day the patient felt better. The mass in the upper right quadrant moved with respiration about 9 cm. below the costal margin, and was not as tender as on admission. The urine continued to show the same findings.

On the tenth hospital day surgical and dermatological consultations were requested. A biopsy of a lymph node was suggested, and a repetition of the white cell count and differential count. The blood Kahn test was negative. A pyelogram was also recommended to rule out a possible kidney condition. Both a gastro-intestinal series and a barium enema were reported negative. The patient was given potassium iodide, 12 drops three times per day, and the dose was increased one drop daily. One per cent adrenalin solution was used for the nose. The right epitrochlear node was removed for study.

On the thirteenth hospital day the white cell count was 5,450, with 60 per cent polymorphonuclear leukocytes, and 40 per cent lymphocytes. The icterus index was 5.

On the fifteenth hospital day a cystoscopic examination was made which showed a mild hemorrhagic cystitis. The urine from the left kidney showed many white blood cells and red blood cells, with a few bacteria. The pyelogram showed a hydronephrosis of the right kidney.

On the twenty-first day of hospitalization a white cell count was made by Dr. Frost, Pathologist of the hospital. The total count was 4,500, with a differential of eosinophils, 15 per cent; juveniles, 6 per cent; stabs, 23 per cent; segmenters, 15 per cent; monocytes, 15 per cent; lymphocytes, 12 per cent; basket cells, 9 per cent; unknown 5 per cent. The biopsy report was as follows: Section of node composed of friable, firmly granular gray tissue. Microscopically the node showed complete destruction of its architecture and replacement by a large number of focal proliferations of epithelioid cells. The foci were small and consisted almost entirely of epithelioid cells, with only a few lymphocytes. A few contained large giant cells located generally at the center of the foci. There was no necrosis present. Diagnosis: Sarcoid of Boeck.

Up to this point the diagnosis was a matter of impressions—Hodgkin's disease, lymphosarcoma, leukopenia, and a luetic condition being considered the likely possibilities.

The rhinitis began to clear up and the patient became less tender over the liver, but there was still definite enlargement of the liver. The patient had no complaints, and was allowed to be up and about the ward. The x-ray examination of the chest suggested the possibilities of metastatic growth or Boeck's sarcoid, the lung fields having the appearance of a miliary tuberculosis, with the exception of both apices, which were relatively clear. Two tuberculin tests were done with 1-1,000 Old Tuberculin, and a 2 plus reaction resulted on both occasions. A glucose tolerance test was done, with a resulting high normal reaction. The stool examination was negative and the van den Bergh reaction was negative.

The liver became somewhat smaller, with no tenderness, after five weeks in the hospital. X-rays of the bones of the hands and feet were made, but did not reveal any gross pathological changes; however, there was a slight coarseness and thickening of the bone trabeculae, frequently seen in Boeck's sarcoid. The characteristic cystic changes of Boeck's sarcoid in the bone were not present.

On the patient's discharge from the hospital, the urine had practically cleared up. The red cell count and hemoglobin were normal, but the patient continued to have a mild leukopenia—4,300 white blood cells, with 49 per cent lymphocytes. The exact cause of the amenorrhea was never determined.

The patient was discharged from the hospital as improved, with a diagnosis of Boeck's sarcoid, and was asked to return to the Clinic for a check-up. She was seen later in the Clinic during the course of the next two months, but her menstrual periods had not yet started. She gave no history of a menopausal syndrome.

Discussion

This case is somewhat similar to that of a colored female, aged thirty-seven, reported by Eichenlaub and Sandler[1]. Their case was more typical of the lupus pernio or cutaneous type. While this case is more of the generalized or "Besnier-Boeck-Schaumann" type, their case had had negative Wassermann reactions, yet received treatment, as did the case presented.

1. Eichenlaub, F. J. and Sandler, I Lewis: Boeck's Sarcoid, Am. J. Roentgenol., April, 1938.

In the paper of Babalion[2] on diseases of Besnier-Boeck-Schaumann, the Strasbourg School's point of view is presented. He classifies the lesions as cutaneous, ocular, lymphatic, respiratory, mucous membrane, osseous, visceral and miscellaneous. The type reported here would come under the lymphatic lesion primarily, with an accompanying respiratory and visceral lesion, the liver and lungs being involved.

There is still discussion as to the etiology of this condition. Formerly it was thought to be tuberculous in origin[3]. More recently it is classified as an infectious granuloma of non-tuberculous origin.

This condition may be described as a benign infection involving especially the lymphoid tissues and affecting various other parts of the body, as previously pointed out by Babalion. It has been described under various names: "lupus pernio" (Besnier), sarcoid and "Benignes Miliar—lupoid" (Boeck), benign lymphogranulomatosis (Schaumann), Boeck's sarcoid, "ostitis tuberculosa multiplex cystoides" (Jungling)[4].

The disease was probably first observed and recorded as an affection of the skin, and was described primarily as a skin condition by Jonathan Hutchinson (Hunter). Later it was found that bones, lungs and other organs were affected. Boeck originally described three types, and the histopathology of the lesions have been regularly and repeatedly confirmed. His first form consisted of "small, firm, sharply demarcated cutaneous nodules of waxy or semi-transparent appearance, with brown, bluish or violaceous centers. The surface of the nodules was smooth and ulceration never occurred." (Longcope).

The second form consisted of larger nodules of much the same character, and the third form was a diffuse infiltration of the skin.

In the diagnosis the essential factors are: (1) clinical picture; (2) histology; (3) usually the absence of acid fast bacilli; (4) fine miliary sprinkling of the lungs; (5) bone changes; (6) anergic reaction to high concentrations of tuberculin[1].

2. Babalion, Leon, in New England J. Med., January 26, 1939.
3. Scheidemardel, F.: Boeck's Sarcoid of Hilus Glands, Deutscher Tuberkulse Blatt, October, 1939.
4. Longcope, Warfield T.: The Generalized Form of Boeck's Sarcoid, in The Practitioner's Library of Medicine and Surgery, Appleton, v. 13, p. 125.

Nickerson,[5] in his "Report of Six Cases in which Autopsies were Made", stated that caseation should never be present. This fact is important in differentiating Boeck's sarcoid from tuberculosis. He also states that the giant cells are different.

Other hypotheses which are in favor of the etiological factor's being a tuberculous one are those brought out in the paper of Babalion, on the tuberculide theory, that the disease is an attenuated form of tuberculosis, due either to a degenerated bacillus, a tuberculous toxin or a filtrable virus. Schaumann invokes an inactive tuberculosis of bovine origin. Some authors believe this to be most likely and state that the reason for not obtaining the bacilli on culture and guinea pig inoculation is that the lesion results from a reaction set up by attenuated organisms or organisms of bovine type, the organism being degenerated. Perhaps the syndrome can be due to several causes, as Darier says of all cutaneous sarcoids.

There have been several reports of guinea pig inoculations from suspensions of glands of Boeck's sarcoid with the hope of recovering the acid-fast organism, but these reports show that no organisms have been recovered in several series of inoculations. However, there have been reports that the organisms were recovered in a very few cases when there was known tuberculosis present.

The prognosis in this condition is usually good, as the mortality rate is very low. There have been reports of death due to some complicating factor.

There has been no definite or specific treatment instituted as yet. Several forms of theraphy have been tried, and from the reports, arsenic in the form of Fowler's Solution seems to have been the most widely used. Preparations of chaulmoogra oil have been used, as well as intradermal tuberculin, ultra-violet light and Finsen ray. No form of antiserum has so far been made available.

5. Nickerson: Boeck's Sarcoid: Report of Six Cases in Which Autopsies Were Made, Arch. Path., July, 1937.

Vitamin Concentrates. — Normal elderly people should neither be denied a sufficient dietary nor purposeful work. However, age inevitably invites acute or enduring episodes of illness in which a normal food intake is difficult or impossible. The longer these lapses obtain, the more likely certain vitamin concentrates (particularly the B and C groups) are to become very useful pharmacologic agents.—E. L. Tuohy, M.D.: An Adequate Dietary in Later Life, Wisconsin M. J. 39:353 (May) 1940.

CLINICO-PATHOLOGICAL CONFERENCE

DUKE HOSPITAL

July 12, 1940

Dr. O. C. Hansen-Pruss (reading the clinical summary):

The patient, a thirty-one year old white married female, entered the hospital complaining of severe frontal headaches of seven weeks' duration.

Family History: The father had had "sick headaches", but outgrew them. The mother died of carcinoma of the stomach and breast. One brother had had severe headaches all his life.

Past History: The patient had been married six years, but had never been pregnant. Her general health had always been "only fair." She had had asthma each spring and fall since the age of fourteen; the last attack occurred approximately six days prior to admission, lasting one to two hours. The patient had had recurring attacks of urticaria, seemingly associated with eating pork. She had pyelitis six years ago, treated successfully. Eight years ago, she had severe dysmenorrhea, treated by x-ray therapy over the pituitary; at that time she was given antuitrin S by mouth. This relieved her condition somewhat. The patient had always had recurring "sick headaches" with nausea and vomiting up until the past four or five years. There was no history of an operation or an injury.

Present Illness: For the past three or four months, the patient had noticed an increasing difficulty in remembering places where she put things. She had also noticed a tendency to mix her words while talking. About seven weeks ago, without any previous warning, she had a sudden sensation "as though her eyeballs were turning over and over with many flashes of light". This condition lasted two minutes and was followed by a six-minute period of unconsciousness, during which she had tonic convulsions and demonstrable opisthotonos. She awakened, and with the help of her friends staggered to bed. A few minutes later she developed a severe, sharp pain in the right eye and frontal part of the head, radiating to the occipital region, associated with a knife-like pain on the right side of her nose. This pain persisted for eight days, during which time she did not vomit; she took many Stanback powders for relief. The day after the convulsion, she developed blurring of vision and diplopia, which cleared in about twelve days, to return again twelve days before admission. Nine days before admission she developed complete ptosis of the right eye lid. The right side of the neck became sore and she noted a tendency to fall to the right. She had had no chills and only a slight fever.

Physical Examination: The temperature on admission was 37.9° C.; the pulse 92; respirations 22, and blood pressure 118/80. She was well nourished, obviously ill, a bit somnolent. There was a complete ptosis of the right upper eyelid. The right eye was deviated outward; the right pupil was dilated and fixed. The left eye reacted to light, when it was shone in the right eye. The fundi showed oval discs, full veins; no edema or hemorrhages. The uvula was in the midline. The neck was supple. There was a definite hyperesthesia of the right cornea. There was complete paralysis of the third nerve. Motor power everywhere was equal and good.

Reflexes	Right	Left
Corneals	xxx	xx
Gag	x	
Biceps	xx	xx
Triceps	x	xx
Radio-periosteals	x	xx
Hoffman	0	0
Abdominals	xx/x	xx/x
Knee jerks	x—	x
Ankle jerks	x—	x—

There was no clonus. Position and vibratory senses were intact. Point-to-point tests were normal. There was no dysdiadokokinesia.

Accessory Clinical Findings: The hemoglobin was 84 per cent. The red cell count was 3,700,000, with a color index of 1.2. The white cell count was 8,000. The differential formula was normal. The sedimentation rate was 0 mm. per hour, corrected. Blood Wassermann and Kahn reactions were negative. The blood bromides were 86 mg. per cent. Repeated urine analyses were essentially negative.

A lumbar puncture was done. The spinal fluid dynamics were normal, the fluid clear. The benzidine test was slightly positive. The spinal fluid total proteins were 47 mg. per cent. The colloidal gold and spinal fluid Wassermann were negative.

Course in the Hospital: On the third hospital day, the patient awakened feeling fairly well. She sat up and talked for a while, but suddenly fell back complaining of severe

right-sided headache. She had a short tonic convulsion and demonstrated opisthotonos. She was drowsy but oriented. She turned from the prone to the supine position and immediately lapsed into a semi-comatose state; she had a tonic convulsive seizure with incontinence of urine. From time to time she roused and complained of terrific headache. Examination at that time showed:

Cranial Nerves

I. Could not be tested.

II. Blurring of the disc margins with distention of the veins of the retinae and hemorrhages into the retinae.

III, IV, and VI. Ptosis of the right eyelid with dilatation of the pupil; the right pupil did not react to light. The left pupil was small, dilated and contracted at irregular intervals. There was a divergent strabismus.

V. Could not be tested.

VII. There was a suggestive left lower facial weakness.

The remainder of the cranial nerves could not be tested satisfactorily.

Motor System

There was no atrophy or fibrillary twitchings.

There was a flaccid paralysis of the left arm, and some weakness of the left side of the body.

Sensory System

The examination was unsatisfactory.

Coordination

The patient was unable to cooperate.

Reflexes	Right	Left
Corneal	xxx	x
Gag	x	
Biceps	x	xx
Triceps	x	xx
Hoffman	0	0
Abdominal	Absent	Absent
Knee jerks	x	xx
Ankle jerks	x	xx
Plantar	No response	

At this time, a slight stiffness of the neck was noted. The lumbar puncture was repeated, and grossly bloody fluid obtained.

Throughout the remainder of that day the patient complained of a severe right-sided headache. She occasionally fell asleep and at other times was rather drowsy. Temperature, pulse and respirations remained within normal limits.

At two-thirty a. m. on the fifth hospital day the patient sat up and asked for a cigarette. Suddenly she fell back and had a short convulsion. Respirations ceased and in spite of stimulants and artificial respiration, the patient expired.

Discussion

Dr. Hansen-Pruss: An analysis of this patient's history reveals the following important points, which assume greater significance when their sequence is considered: (1) There was a gradually developing loss of memory and tendency to mix words four months before death. (2) Two months later the patient had a sudden attack initiated by light-scotomata, then leading in two minutes to unconsciousness, which was followed a short while later by a generalized tonic convulsion of six minutes' duration with opisthotonus. (3) On recovering from this, she experienced a severe, knife-like pain in the right eye and radiating from the bridge of the nose on the right side to the occiput. This pain endured for eight days. (4) The day after the convulsion she noticed blurring of vision, and diplopia which endured twelve days and then recurred about two weeks before admission. (5) Nine days before admission, or about three and a half months after the onset of the first symptom, she developed a ptosis of the right upper eyelid, then noted a tendency to fall to the right side. (6) There were repeated tonic seizures with opisthotonos and (7) finally, sudden death on the fifth hospital day, approximately three months after the onset of the first symptoms, seven weeks after the onset of the headache.

The interpretation of the physical findings and accessory clinical data is outlined in the chart on the opposite page.

The nature of the underlying disease process is, I believe, quite evident if one considers the patient's age and the story. Although the first symptoms are difficult to interpret, the subsequent history is strikingly that of repeated vascular accidents resulting in multiple injuries to the brain, mainly to the right anterior portion and base of the brain. Such injuries were probably the result of hemorrhage from ruptured aneurysmal dilatation of superficial cerebral arteries and those composing the circle of Willis. The grossly bloody spinal fluid marks the occurrence of a subdural hemorrhage. The early manifestations — namely, the loss of memory, and the tendency to mix words — probably were due to smaller hemorrhages

Physical Examination and Interpretation:

T. 37.9° C P. 92 Resp. 22 B. P. 118/80

(Temperature and pulse rate remained within normal limits.)

	Lesion of:		
1. Complete ptosis right lid	3rd. C. N.	right	Lesion at base of brain (ipsilateral—right)
Divergent strabismus O. D.	3rd. ?		
Right pupil dilated, fixed	3rd. C. N.	right	
Consensual reflex present	2nd. C. N.	intact	
Hyperesthesia cornea O. D.			
Disc margins blurred, veins full			
Hemorrhages seen 3 days later	2nd. C. N.		
Suggestive left lower facial weakness	7th. C. N.	right (supranuclear)	
2. Corneal reflex O. D. 3x O. S. 2x	5th. C. N.	irritation	
Abdominal reflexes present on admission			
Abdominal reflexes absent 3 days later			
Flaccid paralysis—left arm—upper motor neuron lesion? (Not noted on admission—new development?)			
3. Repeated **tonic** convulsion	Infracortical irritation		
Opisthotonus	Midbrain? Cerebellar?		

4. Lumbar Puncture:
   Dynamics normal
   Clear fluid, Cells 0 — Rules out meningitis
   Benzidine trace
   Proteins 47 mg. %
   Colloidal Gold: Wassermann negative

5. Hbg. 84%, RBC 3,700,000, WBC 8,000
   Blood bromides 86 mg. %
   Wassermann, Kahn negative

6. Lumbar puncture on third day, after tonic seizure—"grossly bloody fluid."
   Massive hemorrhage into cerebro-spinal canal.

of similar origin, in the region of the left fronto-temporal zone. As a matter of interest, other disease processes must be considered in the differential diagnosis, as outlined below:

Differential Diagnosis:

1. Brain tumor. This is not likely because of:
   (a) Sudden onset of cardinal symptoms
   (b) Signs of increased intracranial pressure relatively slight — no definite papilloedema.
   Disparity between neurological signs pointing to brain lesion and evidences of increased intracranial pressure.
   (c) Normal spinal fluid findings.
2. Brain abscess (single or multiple). Against it are:
   (a) The history: suddenness of onset of headache
   (b) Absence of a demonstrable pyogenic process
   (c) Lack of fever, leukocytosis, intoxication, normal sedimentation rate
   (d) Spinal fluid findings
   The same applies to sinus thrombosis
3. Vascular accident with hemorrhage.
   This is suggested by:
   (a) Suddenness of onset
   (b) Borderline age for the manifestations of congenital anomalies (vascular).
   (c) Blood in spinal fluid
   (d) Rapid downhill course with sudden death.

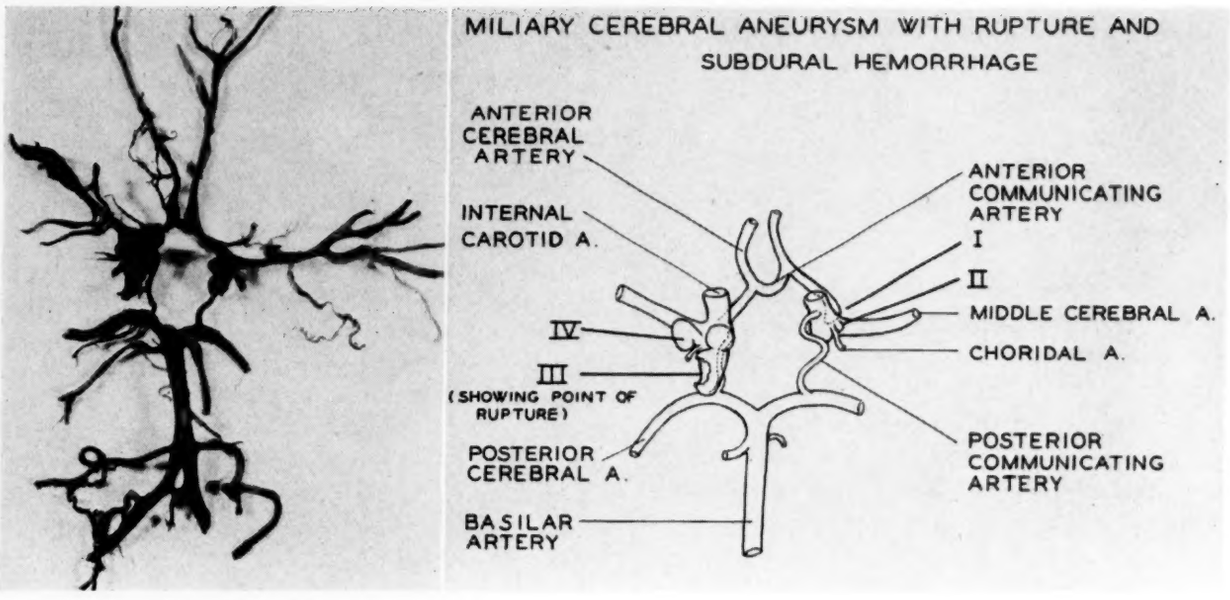
Summary

It is our impression that this young woman had a congenital vascular anomaly which resulted in multiple aneurysmal dilatations of the arteries composing the circle of Willis, or of branches of the superficial cerebral arteries. It should be remembered that she was an asthmatic, and that she had the last severe attack of asthma five days before her admission to the hospital. It is quite possible that these asthmatic seizures, and an accompanying transitory hypertension[1, 2] were important contributory factors, leading to the rupture of the aneurysmal dilatations.

Clinical Impression:

Asthma (history)
Congenital miliary aneurysms of the superficial cerebral arteries
Rupture of such aneurysms
Repeated cerebral hemorrhages
Subdural hemorrhage.

1. McLaughlin, James: Blood Pressure in Allergic Individuals, J. Allergy, 2:360, 1931.
2. Witts, J. J.: The Blood Pressure in Asthma, Guy's Hospital Reports, 83:213, 1933.



Autopsy Findings

Dr. Douglas H. Sprunt: With the exception of the brain the organs showed nothing abnormal. A large amount of blood was found between the dura and pia-arachnoid on the right side. A careful dissection of the cerebral vascular system was made by Dr. G. Margolis. Four aneurysms were found near the circle of Willis. These are well shown in the accompanying illustration and diagram. As shown in the diagram aneurysm III was ruptured and was the source of the hemorrhage. These aneurysms were proven by section to be the result of a congenital defect in the vessel wall. Their formation has been discussed by Forbus[3].

Anatomical Diagnosis: Multiple aneurysms of congenital origin of cerebral vessels with rupture of one; subdural hemorrhage.

3. Forbus, W. D.: On the Origin of Miliary Aneurysms of the Superficial Cerebral Arteries, Bull. Johns Hopkins Hospital, 47:239, 1930.

The Average Ulcer Patient. The average ulcer patient without a complication can be treated with any sort of a diet, provided the food is soft and the patient eats slowly. The average patient with peptic ulcer can obtain relief from any medication if he lives regularly and watches his eating habits. It is not necessary to make the patient take medicine every hour or two, and to carry milk and cream wherever he goes. A bland diet, with milk between meals and before going to bed, with probably a little belladonna or atropine, or, if necessary, some alkaline powder, may be sufficient.—W. D. Paul: Indigestion and Abdominal Pain, Journal of Iowa State Medical Society, 30:486 (October) 1940.

Therapeutic Optimism.—The time of therapeutic nihilism is over. As recently as 1931 an able physician advised students that, "with the tendency to recover which is inherent in every one, you need not be fussy about just what medicine you can use." But the situation has been radically changed by the discovery of effective hypnotics, analgesics, thyroxine, adrenal and pituitary hormones, insulin, liver extract, vitamins, sulfanilamide, atabrine, carbarsone, prostigmine and specific serums, to mention but a few. Even neurology and psychiatry are yielding to therapeutic approach. We are living in the beginning of an era of the greatest therapeutic triumphs in the history of medicine. This newly acquired knowledge, however, places increased responsibilities on the physician because all therapeutic agents not only can do good but also can be harmful. The practice of medicine has ceased to be but a supervision of the play of the forces of nature. It is rapidly becoming a field of biologic engineering of active intervention. In order to practice good therapeutics the physician must know the beneficial as well as the untoward effects of the physical and chemical agents. He must be as individualistic in treatment as he is in diagnosis. He must have at his disposal all the measures available for the treatment of the same ailment, so that if one fails he may try another. The supervision of the treatment must be close, and too much must not be relegated to nurses. All the patient's complaints should be taken seriously and treated. The importance of the treatment of symptoms is often underestimated. The art of providing sound sleep for a restless patient with pneumonia or with coronary thrombosis may be a lifesaving measure.—Soma Weiss, M.D.: The Medical Student Before and After Graduation, J. A. M. A. 114:1716 (April 27) 1940.

* * * *

Patients Need Consideration.—Except for a few low-grade morons and some poor wretches who want to get in out of the cold, there are not many people who become hospital patients unless there is something the matter with them. And, by the same token, I doubt whether there are many people who spend their money on visiting private physicians unless there is something the matter with them.—Francis W. Peabody: Doctor and Patient, New York, The Macmillan Co., 1939.

BULLETIN BOARD

PRESIDENT'S MESSAGE

The Opportunities for Obtaining Post Graduate Medical Education in North Carolina

Our thoughts naturally turn with the fall season and the advent of the school and college year to the idea of acquiring advanced and improved medical knowledge. A stay in a distant medical center for post graduate work is often impractical, because of the financial sacrifice involved and the absence from practice. We may well consider what we have near home that is of excellent quality and may be obtained at little cost of time and money. Post graduate work may be obtained in North Carolina in practically every field of medicine.

At Duke University each October a three-day symposium is held on some important phase of medicine, covering it thoroughly from the diagnostic, therapeutic, and surgical point of view. Men, nationally distinguished for their ability in their specialties, lecture on these subjects. The symposiums are free of all cost to those attending them save the usual expenses of living. The *Bulletin* of the Duke University School of Medicine has carried the following statement for several years: "Duke University School of Medicine is not limited to the training of its own students and staff, but extends to the members of the medical profession the benefit of everything it has." Graduates in medicine are welcomed especially at the various clinics and demonstrations in medicine, surgery, obstetrics and other specialties which are held from 9:00 a. m. to 12:30 p. m. each Saturday, and at the clinico-pathological conferences at 5:00 p. m. on Wednesdays. Post graduate internships for one or two weeks are available to physicians in practice. A fee of $10.00 per week is charged for room and board. Further information may be obtained by writing to the head of the department concerned or to the Dean.

Each year the Extension Department of the University of North Carolina offers courses in all sections of the State. Every phase of modern medicine is covered by physicians of national leadership and distinction. A moderate fee covers the expense of these courses, which are brought to points convenient to all, and which are of most excellent quality.

The University of North Carolina also offers courses at its School of Public Health at Chapel Hill. The faculty is outstanding, and although the school is relatively new its excellence is obtaining national recognition.

The Bureau of Infancy and Maternity Care of the State Board of Health offers free symposiums every year in Pediatrics and Obstetrics. Men of national repute also lead in these lectures and demonstrations. A Seminar in Pediatrics is held during the summer at Saluda. The work is extended over several weeks, and the instruction offered is excellent and of moderate cost.

Thus, it may be seen that unusual opportunity for unexcelled post graduate medical instruction awaits us at our very doors for little or no cost. It is an opportunity which should not be neglected by any man in the medical profession in North Carolina.

Hubert B. Haywood, M.D.

MINUTES OF THE EXECUTIVE COMMITTEE

Medical Society of the State of North Carolina
September 8, 1940

The Meeting of the Executive Committee of the Medical Society of the State of North Carolina held in the Raleigh Room of the Sir Walter Hotel, Raleigh, on Sunday, September 8, 1940, was called to order by President Haywood at 11:00 a. m.

The following were present:

President, Hubert B. Haywood
President-Elect, F. Webb Griffith
First Vice President, D. W. Holt
Secretary-Treasurer, T. W. M. Long
Councillors:
First District—H. D. Walker
Second District—Thomas Leslie Lee
Third District—W. Houston Moore
Fourth District—G. W. Mitchell
Fifth District—J. G. Pate
Eighth District—James H. McNeill
Ninth District—I. E. Shafer
From Committee on Legislation:
Donnell B. Cobb, Chairman
From State Board of Health:
Carl V. Reynolds, Secretary

The meeting began with the Secretary's request that the date of the 1941 meeting be set. Dr. Mitchell, seconded by Dr. Moore, moved that the next annual meeting of the State Medical Society be held in the Carolina Hotel, Pinehurst, May 19, 20, 21, 1941. The motion was unanimously carried.

President Haywood presented a prepared abstract on the subject of "Medical Preparedness." Dr. Griffith, Chairman of Medical Preparedness in the State, asked for suggestions as to the best method of setting up the draft or examining boards. Dr. Mitchell spoke on the pitfalls of setting up such boards. Dr. Moore suggested that the boards be composed of men who would not be subject to the draft law. Dr. Griffith then read a letter from Surgeon General James C. Magee, to Dr. Olin West stating what had been done to date in this matter.

Following further discussion Dr. Griffith read a memorandum from the Surgeon General concerning "Physical Examination of Selectees under the Provisions of the Selective Service Act." After further discussion, Dr. Mitchell, seconded by Dr. Lee, moved that, if the need arises, each County Medical Society be requested to submit double the number of names of men needed to make up these Boards, and that the State Chairman, with the assistance of the Councillors, make the final appointments to the various Boards. The motion was carried.

Dr. Moore, seconded by Dr. Pate, moved that Dr. Carl V. Reynolds be added to the Medical Preparedness Committee as an ex-officio member. This was unanimously carried.

Dr. Donnell B. Cobb, Chairman of the Committee on Legislation, read through the measures that had been suggested to the Committee. It was suggested that Dr. Cobb wait upon the heads of the various State Departments affected by the proposed legislation and get their reaction to same. Dr. Mitchell, seconded by Dr. Long, moved that the Executive Committee give its full approval to the Committee on Legislation and empower the committee to use its best judgment in all matters pertaining to medical legislation. This motion was unanimously carried.

Dr. Mitchell, seconded by Dr. Moore, moved that the sum of $600.00 be set aside to defray the expenses of Dr. Griffith's Medical Preparedness work. The motion was unanimously carried.

The matter of extending the Durham-Orange Counties Medical Society insurance plan was brought up for discussion. Dr. Mitchell, seconded by Dr. Lee, moved that the Secretary be instructed to write Medical Service Association, Inc., stating that it was acting contrary to the resolution passed by the State Medical Society at its last meeting in going outside Durham and Orange Counties and the subsidiaries of the Erwin Cotton Mills in soliciting business, and that the State Society would appreciate it if this solicitation was stopped.

There being no further business, it was moved that the meeting adjourn.

News Notes from Wake Forest College

Dr. Herbert S. Wells, Professor of Physiology, started work this month at Wake Forest on research on the cause, prevention and treatment of shock. This work is being rushed at the request of the National Research Council in cooperation with the National Defense Program.

Dr. John A. Rose of the faculty of the University of Pennsylvania School of Medicine, who is also on the staff of the Philadelphia Child Guidance Clinic, has been elected to the Department of Psychiatry of the Bowman Gray School of Medicine of Wake Forest College and psychiatrist to the Winston-Salem Child Guidance Clinic. Dr. Rose will assume his position on February 1, 1941. He received his B.A. degree from Rice Institute in 1929, and his M.D. degree from the University of Texas Medical School in 1933. He served an internship at Jefferson Davis Hospital in Houston, Texas, and was assistant resident in psychiatry at the New Haven Hospital and assistant in psychiatry in the Yale University School of Medicine from 1934 to 1936. He served as physician in charge of student mental hygiene at Cornell University for two years, and has served for about two years on the staff of the Philadelphia Child Guidance Clinic as a fellow in child psychiatry of the National Committee of Mental Hygiene. He is a Fellow of the American Medical Association, American Psychiatric Association, and is a diplomate of the American Board of Psychiatry and Neurology.

PROGRAM

Symposium on

Diseases of Metabolism

and

Diseases of the Blood Forming Organs

Page Auditorium

Duke University School of Medicine and Duke Hospital

Thursday, October 31, 1940

2:00 P.M.—Dr. Cyrus C. Sturgis, Ann Arbor, Michigan
Hemorrhagic Diseases.

3:00 P.M.—Dr. Louis K. Diamond, Boston, Massachusetts
Practical Aspects of Treatment of Anaemias in Childhood.

4:00 P.M.—Dr. Claude E. Forkner, New York
The Leukemias.

8:00 P.M.—Dr. Elliott P. Joslin, Boston, Massachusetts
Diabetes and Its Treatment.

9:00 P.M.—Dr. Thomas B. Cooley, Detroit, Michigan
Hemolytic Anaemias

Friday, November 1, 1940

9:00 A.M.—Dr. Fuller Albright, Boston, Massachusetts
The Diagnosis of Hyperparathyroidism.

10:00 A.M.—Dr. Eugene F. Du Bois, New York
The Clinical Application and Interpretation of the Basal Metabolic Rate.

11:00 A.M.—Dr. Frank H. Lahey, Boston, Massachusetts
The Management of Hyperthyroidism.

2:45 P.M.—Dr. Allen O. Whipple, New York
Indications for and Results Following Splenectomy.

3:30 P.M.—Dr. Leland S. McKittrick, Boston, Massachusetts
Surgical Complications of Diabetes.

4:15 P.M.—Dr. George R. Minot, Boston, Massachusetts
Some Aspects of the Etiology, Diagnosis and Treatment of Iron Deficiency Anaemias and Pernicious Anaemia.

7:30 P.M.—Buffet Dinner—$1.25.

Saturday, November 2, 1940

9:00 A.M.—Dr. Frank A. Evans, Pittsburg, Pennsylvania
The Nature of Obesity, Its Prevention and Cure.

10:00 A.M.—Dr. Alexis F. Hartmann, St. Louis, Missouri
The Complete Treatment of Diabetic Acidosis.

11:00 A.M.—Dr. Russell M. Wilder, Rochester, Minnesota
What is Hyperinsulinism?

2:00 P.M.—Homecoming Football Game
Duke vs. Georgia Tech.

News Notes from Duke University

The following new members have been added to the faculty: In the Department of Psychiatry, Dr. Richard S. Lyman, Professor, Dr. Hans Lowenbach, Assistant Professor, Dr. R. Burke Suitt, Associate, Dr. Maurice H. Greenhill, Associate, and Dr. Daniel J. Sullivan, Instructor; in the Department of Medicine, Dr. Herbert J. Fox, Instructor; and in the Department of Anatomy, Dr. Kenneth L. Duke, Instructor.

News Items from the University of North Carolina

Dr. C. E. Brown has been appointed Assistant Professor of Pathology in the Medical School and will have charge of the pathological laboratory at Watts Hospital, Durham. Dr. Brown was formerly Assistant Pathologist at the Lankenau Hospital, and Instructor in Pathology at the Graduate School of the University of Pennsylvania. For the past three years he has been pathologist to the St. Francis, the Cottage and General Hospitals in Santa Barbara, California.

Dr. C. D. Van Cleave, formerly of the Department of Anatomy of the Cornell Medical School, has been appointed Assistant Professor of Anatomy in the Medical School.

Dr. Harold W. Brown, of the School of Public Health, made a visit to the Kellogg Foundation in Battle Creek, Michigan, during the early part of September to study its operation and serve as a judge of their health contest.

Dr. Robert Barrett Lawson, who has recently been in Rochester, N. Y., connected with Strong Memorial Hospital as Resident Physician in Pediatrics and Instructor in Pediatrics at the University of Rochester, has joined the staff of the School of Public Health as Professor of Pediatrics. His work is in cooperation with the program of the N. C. State Board of Health and Duke University for postgraduate instruction of selected groups of physicians, which will be carried out at Duke University during the fall and spring quarters. During the winter term, Dr. Lawson will teach pediatrics in relation to public health in the School of Public Health at the University of North Carolina.

Applications received to date indicate that the enrollment in the School of Public Health will be over 70 for the fall quarter beginning September 24, 1940.

News Notes from the State Board of Health

In view of some misunderstanding that has arisen regarding the preparation and sale of sandwiches in drug stores and similar establishments, Dr. Carl V. Reynolds, State Health Officer, has issued the following statement on this subject.

"In as much as many drug stores now prepare and sell sandwiches and because these same establishments in some instances do not regard themselves as restaurants and have complained because they have been inspected and rated as such, an explanation may help to clarify misunderstandings.

"The Hotel and Cafe Law states that 'The term restaurant as used in this act shall include lunch counters, cafes and all other establishments whatsoever where lunches, meals or food in any form are prepared for and (or) served to the public for immediate consumption.'

"Following an inspection, a placard showing the sanitary grade determined is required to be posted by the proprietor."

American College of Physicians of North Carolina

The 1940 Regional Meeting of the American College of Physicians of North Carolina was held in Chapel Hill October 11 and 12. The program which was presented is as follows:

Friday Afternoon, October 11, 1940

2:30 o'clock

(Auditorium, Medical Building)

Symposium on Cholecystic Disease

1. Etiology and Pathology of Cholecystic Disease.
   Dr. Edward J. Wannamaker, Charlotte, N. C.
2. Symptoms and Signs.
   Dr. Sidney F. LeBauer, Greensboro, N. C.
3. Roentgenologic Consideration.
   Dr. W. T. Rainey, Fayetteville, N. C.
4. Laboratory Consideration.
   Dr. E. B. Craven, Jr., Lexington, N. C.
5. Diagnosis (Correlation of History, Physical Examination, Laboratory and X-Ray Evidence).
   Dr. Wingate M. Johnson, Winston-Salem, N. C.
6. Differential Diagnosis.
   Dr. Walter R. Johnson, Asheville, N. C.
7. Management.
   Dr. Julian M. Ruffin, Durham, N. C.

Friday Evening, October 11, 1940

7:00 o'clock

Dinner, Carolina Inn

Toastmaster — Dr. Charles Hartwell Cocke, Asheville, N. C., Governor for North Carolina, American College of Physicians.

Address: "Recent Trends in Postgraduate Medical Education."—Dr. James D. Bruce, Ann Arbor, Mich. Vice-President of the University of Michigan and President of the American College of Physicians.

Saturday Morning, October 12, 1940

9:00 o'clock

1. A Report of an Unusual Case of Leukemia.
   Dr. K. P. Turrentine, Kinston, N. C.
2. The Psychoneuroses.
   Dr. Frederick R. Taylor, High Point, N. C.
3. Fatigue.
   Dr. James D. Bruce, Ann Arbor, Mich.
4. Recent Advances in Diseases of the Chest.
   Dr. S. M. Bittinger, Black Mountain, N. C.
5. Phytobezoars with Case Report.
   Dr. James H. McNeill, North Wilkesboro, N. C.

Dr. Charles Hartwell Cocke is Governor for North Carolina, and Dr. Paul F. Whitaker is Chairman of the Program Committee.

Southern Medical Association

The Thirty-Fourth Annual Meeting of the Southern Medical Association will be held in Louisville, Kentucky, November 12-15.

Memorial Hospital Dedicated

The new Memorial Hospital at Charlotte was dedicated by Governor Hoey on October 1. The Governor commended the city on obtaining the 335-bed hospital, which was built with private donations and a PWA grant, and paid tribute to the late James B. Duke and the Duke Foundation.

Ninth District Medical Society

The fall meeting of the Ninth District Medical Society was held in Mooresville at the First Presbyterian Church on September 26. The following papers were presented:

1. "Thrombocytopenia with Leukopenia of Unknown Origin"—Dr. John W. Ervin, Morganton, N. C.
   Discussion: Dr. Alfred Blumberg, Asheville, and Dr. T. D. Sparrow, Charlotte, N. C.
2. "Why a Health Department"—Dr. Carl V. Reynolds, State Health Officer, Raleigh, N. C.
   Discussion: Dr. W. G. Byerly, Lenoir, N. C., and Dr. C. W. Armstrong, Salisbury, N. C.
3. "Pituitary Adenomata"—Dr. J. P. Rousseau, Winston-Salem, N. C.
   Discussion and Case Report: Dr. Dermot Lohr, Lexington, N. C.
4. "The Physicians' Duties for Mobilization under the Selective Service Act"—Col. John H. Sturgeon, Medical Corps, U. S. A., Fort Bragg, N. C.
5. "Some Complications of Pregnancy" — Dr. Creighton Wrenn, Mooresville, N. C.

Following dinner at 7:00 p. m., Dr. D. Sergeant Pepper, of the University of Pennsylvania, spoke on "The Use of Sulfapyridine and Sulfathiazole in the Treatment of Pneumonia". Officers of the society are Dr. W. H. Kibler, Morganton, President; Dr. W. D. McLelland, Mooresville, Vice President; and Dr. J. Sam Holbrook, Statesville, Secretary-Treasurer. Dr. I. E. Shafer of Salisbury is District Councillor.

North Carolina Eye, Ear, Nose and Throat Society

The sixth annual convention of the North Carolina Eye, Ear, Nose and Throat Society was held at the Robert E. Lee Hotel in Winston-Salem on September 26. Guest speakers were Dr. William Thornwall Davis of Washington, who presented a paper on "Physiotherapy in Ophthalmology" in the morning and another on "Medical Ophthalmology" in the afternoon; and Dr. Edward A. Looper of Baltimore, who gave illustrated talks on "Cancer of the Larynx" and "Laryngeal Tuberculosis".

At the business session Dr. M. R. Gibson of Durham was elected president; Dr. Thomas C. Kerns of Durham, vice president; and Dr. V. F. Couch of Winston-Salem, secretary-treasurer. The society voted to change its membership requirements, so that henceforth applicants must have passed either the American Board of Otolaryngology or the American Board of Ophthalmology.

Alamance-Caswell Medical Society Honors Dr. Malloy

At its regular monthly meeting, held on September 10, the Alamance-Caswell Medical Society honored Dr. Stephen A. Malloy of Yanceyville, upon the completion of forty-three years of service to the community. Among the tributes read was a letter from Dr. John W. Harris, Professor of Obstetrics and Gynecology at the University of Wisconsin, which said in part: "I have ridden the roads of old Caswell with him in the day of red mud and dust, and many of our discussions during these journeys gave me a true insight into his wisdom and skill, his high idealism and courage and greatness of heart. I only wish that every young physician could be exposed to the same ennobling experiences that were my good fortune. I know full well how thoroughly he has endeared himself to his patients, not only as their physician but also as their true friend."

The chief speaker of the evening was Dr. Julian M. Robinson of Danville, who paid tribute to Dr. Malloy in the following address:

I never attend a gathering of my profession in your state that I do not feel the atmosphere of cordiality which exists between you, the pleasure you seem to derive in coming in contact with your fellows and the tendency you have to recognize unstintedly merit where it is found. So I am not surprised that you have made this the occasion for honoring one of your members in such a signal but simple manner, which carries with it a sincerity that rings true, a friendship which is felt without words and an appreciation which leaves no doubt as to its genuineness.

For a man to have come into this country, miles from any medical center, with necessarily limited facilities, and to have set up his workshop and to have done his work so well that truly "a beaten path has been made to his door" is an accomplishment of which any man should be proud.

Thirty-six years ago it was my good fortune to make the acquaintance of this man and to be accepted by him in a spirit of friendship which has endured uninterruptedly until this day. I have been called on numerous occasions to assist him in that part of his work for which he was not properly equipped. During that time I have seen many cases with him, some under trying circumstances, but I have yet to see him dodge the issue or attempt to shift the responsibility where it could even remotely have been considered his, nor have I ever had occasion to question his word or his motives.

His patients are his friends and defenders, their devotion touching and beautiful and their faith in him unquestioned. I have never heard among them one word of criticism of his professional ability, his attention, his charges, or his attitude as a friend and counsellor.

His professional ethics have been a model which we would all do well to follow. His qualifications, however, are not limited to the character gems which I have just touched on; but his abilities as a physician, his judgment in handling his cases, his recognition of the limit of his own capabilities and his promptness in coming to a definite decision are noteworthy characteristics of his work.

In his obstetrical work he has a record which is equalled by few, regardless of their training and equipment in this particular line. During the forty-two years of his practice at his present location there have come under his skilful care 3,433 obstetrical cases which have been handled at their homes under conditions which at times were almost unbelievably difficult. During this time he has lost only six mothers, giving him a mortality rate of less than .2 of one per cent.

In the picture I have painted so poorly for lack of words and phraseology you can perhaps visualize the type of man I have in mind. Your society is honored to have him as a member; Yanceyville is proud of being his home; the people of this community are blessed in having him to rely upon, and I am a better physician because of having known him.

A picnic supper was served prior to the meeting by Mrs. S. A. Malloy and Mrs. H. L. Gwynn in the hall of the courthouse.

Buncombe County Medical Society

On September 3 the Buncombe County Medical Society had as its guest speaker Dr. E. V. McCollum, of Johns Hopkins University. His subject was "The Contributions of Medical Science to Medicine". A barbecue supper, followed by a short clinical program, was held on September 16 at the Asheville Orthopedic Home.

Forsyth County Medical Society

The September meeting of the Forsyth County Medical Society was a dinner meeting, held at the Robert E. Lee Hotel in Winston-Salem. There was no scientific program, but the meeting was given over to entertainment. Vocal selections were rendered by a sextet from the society. A violin and guitar duet by Drs. Robert and Fred Garvey, a banjo solo by Dr. Tom Benbow, and a violin solo by Dr. Orpheus Wright were features.

Mecklenburg County Medical Society

The Mecklenburg County Medical Society resumed its regular meetings in September. On September 3 Dr. Tom D. Sparrow gave a paper on "Rationale of the Treatment of Goiter"; Dr. Otho Ross spoke on "X-Ray Treatment of the Thyroid"; and Dr. Marvin Scruggs read a paper on "Total Obliteration of the Thyroid in Heart Disease". On September 17 a pediatrics program was held, with three speakers. A paper on "Pediatric Concepts in Child Management" was given by Dr. Jasper Hunt; Dr. John Donnelly read a paper on "Primary Tuberculosis in Children"; and Dr. Robert Moore spoke on "Gonorrheal Vaginitis in Children".

National Society For Crippled Children

The National Society for Crippled Children of the United States of America met at the Battery Park Hotel in Asheville, October 5-10. The North Carolina League for Crippled Children was the host society.

Examinations

American Board of Obstetrics and Gynecology

The written examination and review of case histories (Part I) for Group B candidates will be held in the various cities of the United States and Canada on Saturday, January 4, 1941, at 2:00 p. m. Formal notice of the place of examination will be sent each candidate several weeks in advance of the examination date. No candidate will be admitted to examination whose examination fee has not been paid at the Secretary's Office. Candidates who successfully complete the Part I examination proceed automatically to the Part II examination held in June 1941.

Candidates for **reexamination** in Part I (written paper and submission of case histories) must request such reexamination by writing the Secretary's Office not later than November 15, 1940. Candidates who are required to take reexaminations must do so before the expiration of three years from the date of their original examination.

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted by the entire Board, meeting at Cleveland, Ohio, in June 1941, immediately prior to the annual meeting of the American Medical Association.

Application for admission to Group A, Part II examinations must be on file in the Secretary's Office not later than March 15, 1941.

After January 1, 1942, there will be only one classification of candidates, and all will be required to take the Part I and Part II examinations.

For further information and application blanks, address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

International Medical Assembly

The Twenty-Fifth International Medical Assembly of the Inter-State Postgraduate Medical Association of North America will be held in Cleveland, Ohio, October 14-18.

News Notes

In the nationally syndicated column "Let's Explore Your Mind" by Albert Edward Wiggam, D. Sc., the following answer was given to the question: "Should children be told both the good and bad things they have inherited?":

"I am a hard-boiled believer in heredity (in environment, too, for that matter) but I think the less that most people worry about their heredity the better. It is a terribly hard thing to tell what a particular individual has inherited and what is due to his environment. Dr. William Allan, of Charlotte, N. C., is doing some of the most important work on human heredity in the world and, no doubt, children who have inherited certain diseases should be warned not to marry persons who have inherited the same diseases. We may soon be able to advise about the heredity of cancer, tuberculosis, feeblemindedness and some forms of insanity—but only in exceptional cases can a forecast be made with much certainty."

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Dr. J. T. J. Battle, Director of the Jefferson Standard Life Insurance Company, died on September 29 in Greensboro.

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Dr. Z. M. Caviness, of Raleigh, President of the American College of Proctology, attended the 1940 session of that organization in Chicago October 1-4.

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Dr. C. S. McLaughlin was presented a gold watch on his seventieth birthday by the Mecklenburg County Medical Society, according to the custom of the society.

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Edward Tankersley, son of Dr. J. W. Tankersley of Greensboro, was killed in a plane crash near Dallas, Texas, on October 2.

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Dr. R. B. Davis, of Greensboro, announces the association with him of Dr. Edwin W. Vaughan in Internal Medicine and Allergy.

Course For Medical Secretaries

A course for medical secretaries is offered this year by Lees-McRae College at Banner Elk. Two years of curriculum in the college and at least six months of theoretical and practical work at Grace Hospital are requirements for graduation, and students are graduated only when they can receive an unconditional recommendation for a position. Only a limited number of selected students are admitted to the course.

A Correction

Through an error of the stenographer of the Section on Public Health and Education, Dr. R. W. Graves was given credit for discussing the paper on "Prevenception" which appeared in the September issue of the **North Carolina Medical Journal.** The discussion was given by Dr. R. A. Ross of Durham.

Proceedings of the Thirteenth Annual Meeting of the North Carolina Public Health Association

Pinehurst, North Carolina, May 13, 1940

MONDAY MORNING SESSION
May 13, 1940

The opening session of the North Carolina Public Health Association convened at ten twenty-five o'clock, The Carolina, Pinehurst, North Carolina, Dr. A. H. Elliott, President, presiding.

President Elliott: The meeting will please come to order.

The first paper for this morning is by Dr. Walter Wilkins, "The North Carolina Coordinated School Health Program."

. . . Dr. Wilkins then presented his prepared paper.

President Elliott: The next paper on the program is "Legal Problems of the Health Officer," by Mr. George B. Patton, Assistant Attorney General.

. . . Mr. Patton then presented his prepared paper.

President Elliott: Before I announce the subject of the next paper, I would like to take this opportunity to appoint two committees, and make one announcement.

On the Nominating Committee I would like to appoint Dr. Hamilton, Dr. Hege and Dr. Foster.

Committee on Resolutions, Dr. Sisk, Dr. Bulla and Dr. McPheeters.

The announcement I would like to make is that copies both of the old constitution of our organization and of the proposed new constitution will be available as you leave the hall. We will take action on that matter this afternoon.

The next paper is on the "Evaluation of Present Regulations Regarding Quarantine, Isolation, Placarding and Reporting in the Control of Communicable Disease," by Dr. J. C. Knox of Raleigh.

. . . Dr. Knox then presented his prepared paper.

President Elliott: In appointing committees a minute ago I failed to announce that the Committee on the Constitution and on the proposed affiliation with the American Public Health Association consists of Dr. Richardson, Chairman; Dr. Carlton and Dr. Norton. I would like to suggest that after you glance over these proposed changes, if there are any recommendations that you feel you would like to make, that you see one of those three committeemen during the lunch hour.

The next paper, is "Public Health Aspects of Bathing Pool Control," by Professor H. B. Gotaas of Chapel Hill.

. . . Professor Gotaas then presented his prepared paper, following which the meeting adjourned at twelve-thirty o'clock.

MONDAY AFTERNOON SESSION
May 13, 1940

The session convened at two-twenty o'clock, Dr. W. P. Richardson, Vice President, presiding.

Chairman Richardson: The second session of the North Carolina Public Health Association will come to order.

The first paper on the program is by Dr. L. L. Parks of Jacksonville, Florida, entitled, "Preparation and Value of Annual Reports."

. . . Dr. Parks presented his prepared paper.

Chairman Richardson: The next paper on the program is by Dr. D. F. Milam of Chapel Hill, the International Health Division of the Rockefeller Foundation, on "The Nutrition Survey."

. . . Dr. Milam presented his prepared paper.

Chairman Richardson: The next paper on the program is by Dr. T. G. Faison of Winton. He will discuss, "Planning the Small County Venereal Disease Program."

. . . Dr. Faison presented his prepared paper.

Chairman Richardson: The next item on the program is a very important business session. First is the report of the Committee on Retirement Plans. Unfortunately Dr. C. C. Hudson of Greensboro, who is chairman of that Committee, has been ill, and not able to get the Committee together prior to this meeting.

However, copies of the retirement plan proposed for school teachers have been secured, and contact is being established with some of the groups in Raleigh which are considering retirement plans for all state employees. There is no definite progress to report as far as I know, and the Committee is still trying to stay on the job to fit any plan of the health officers into whatever general state scheme may be worked out.

We shall be glad to have discussion of retirement plans, or any suggestions, if any of you would like to make them. I am sorry that we don't have more of a report from that Committee. If there is no discussion of the retirement plans at this time, I shall ask Dr. Elliott to make a report on behalf of the Executive Committee.

President Elliott: I have been requested to announce that I received, prior to the ten-day limit, an application from sanitarians and an application from the public health nurses for the formation of a section for those two groups in the proposed Association of Health Workers. One of the provisions of this proposed constitution is that ten days prior to any annual meeting, any section may make application for the formation of a section for their group.

The Executive Committee has agreed, and it hereby recommends that such sections be formed.

Chairman Richardson: Thank you, Dr. Elliott.

Is there any discussion of the recommendation of the Committee?

Dr. Edwin N. Booker (Selma): I want to say that I am heartily in accord with Dr. Elliott's suggestion that a section for sanitarians and a section for nurses be created. I feel that we now have a sufficient number of both nurses and sanitarians to make a very interesting, instructive, and helpful section for both divisions of public health work. A great many of our sanitarians and nurses are now products of the public health schools, and I can think of nothing that would be more helpful than to have meetings such as this as a refresher course.

Finally, I think that all these special sections would result in better work, better understanding, better education, and greater loyalty to the cause in which we are all interested. Therefore, I would like to move the adoption of the recommendation made by Dr. Elliott and this committee that these two sections be formed.

Dr. S. B. McPheeters (Goldsboro): I second the motion.

. . . The motion was carried.

Dr. R. E. Fox (Raleigh): In the event that this proposal goes through, would it not be necessary for the health officers also to form a section? As I understand, the Executive Committee has no formal request to that effect. Inasmuch as the Executive Committee may take action on that before the next meeting, might it not also be advisable for you to consider the matter of forming a section for secretary-clerks in this organization, if you are branching out into sectional meetings? There are many things which they would like to discuss together and they could make some real contributions to the general sessions.

Chairman Richardson: Dr. Fox, would you like to make a motion that in the event that the health officers and clerks make application, this Association approve the formation of sections for health officers and clerks? Perhaps that would make it somewhat official.

. . . The motion was made and carried.

Chairman Richardson: In order to facilitate the functioning of these sections, I should like to appoint some temporary chairmen who will have the responsibility of conferring with their respective groups in regard to getting a permanent chairman and secretary, and cooperating with the program committee in working out a program for the next sectional meetings. These chairmen will use their own judgment and that of their groups as to whether they shall get together while we are here in Pinehurst, or at some future time that is more convenient—perhaps in the case of the state nurses, at the state nurses' meeting. I shall appoint Dr. C. N. Sisk as temporary chairman of the health officers' section; Mr. Walter Stallings of the Guilford County Health Department as temporary chairman of the sanitarians' section; Mrs. Guffey of the State Board of Health Nurses as temporary chairman of the nurses' section; and Miss Stanley of Winston-Salem, as temporary chairman of the section of clerks and secretaries.

Some time prior to the meeting at Greensboro last year, in response to rather definite expressions of opinion from the Association, the President appointed a committee to consider revision of the Constitution and By-Laws.

The Committee presented a report at the meeting at Greensboro, and requested, or recommended, that in order to give the membership more time to consider it, it be carried over to this year. One or two suggestions were made at this time, and they were incorporated into a draft which was sent around to each health department some ten days or two weeks ago.

Since that time a few additional suggestions have been made and accepted by the Committee, and at this time the Secretary will read the report of the Committee on Constitution and By-Laws.

May I make one explanation: This is simply a revision of our old Constitution of the same North Carolina Public Health Association, and is not anything in the way of a new formation.

Secretary Norton: The basis of this revision, as Dr. Richardson says, is the Constitution and By-Laws of the North Carolina Health Officers Association published in the **Health Bulletin** for July, 1911.

I will not read the entire wording here, but will read only the changes.

"Preamble. In order to carry forward and enlarge the services of the North Carolina Health Officers Association organized June 20, 1911, and since that time in continuous active operation protecting and promoting public health, providing for scientific advancement of members, and extending and developing the public health movement. there is hereby formed this Association of Public Health Workers."

It has been suggested that Article II be Article II of the original Constitution. "Article II. The purpose of this Association shall be to bring into one organization the public health workers (instead of just officers) of the State of North Carolina, so that by regular meetings and interchange of ideas they may secure more efficient cooperation, and uniform enforcement of sanitary laws and regulations, and for the better dissemination of such knowledge as will make more effective the opinions of the profession in all scientific, legislative, public health, material and social affairs."

Then it was suggested that under active members there be inserted the words "of good moral and professional standing."

Under officers, it has been suggested that since it has been the custom of this Association not to have a President-Elect, that be stricken out; so that it would read: "The officers of the Association are a president, a vice-president, and a secretary-treasurer," and so on down to the last sentence in that paragraph. The last sentence in the paragraph will be stricken out. The sentence reads: "A representative to the Governing Council," and so forth.

Then on page 2, strike out the entire paragraph 4.

Under Article IV, Executive Committee, there are a few changes suggested, and I will read those. "The Executive Committee shall consist of the latest living past-president, the president—" (It is understood that the president of the Association is, naturally, chairman of the Executive Committee, and it was not felt that it was necessary to say it.) Then strike out president-elect, and so on down to the next sentence. "The three members-at-large shall serve for three years each, with overlapping terms, on being elected" ("appointed" being stricken out and "elected" inserted) "each year by the Association" (instead of by the president). Those are the only changes in that paragraph.

Under Article V, the first paragraph is omitted, and the next paragraph, in regard to the Executive Committee, is intended to follow what I have just read about the Executive Committee.

Article VI: No changes.

Article VII: No changes.

Article VIII: The last sentence under No. 3 in Article VIII is: "All vacancies other than that in the office of President shall be filled through appointment by the President with the approval of the Executive Committee." This is changed to read: "All vacancies other than that in the office of President shall be filled through appointment by the Executive Committee."

Then, under By-Laws, Article I, after the first paragraph, this sentence is inserted: "All persons in attendance shall have the privilege of the floor."

In the next paragraph, "Special meetings of the Association may be called at any time by the President," is changed to read: "Special meetings of the Association may be called by the Executive Committee," and so on.

Under Article II there are no changes.

Under Article III, all except the first sentence is omitted.

Article IV: There are no changes in the first paragraph.

In the second sentence of the second paragraph, which reads, "Membership Committee shall consist of three members or more of the Association, including the Secretary-Treasurer, who shall be an ex-officio member and shall be Chairman of the

Committee. All applications received for membership shall be referred to the Membership Committee . . .", the rest of that sentence has been changed to read: "which shall pass on eligibility and refer the names to the Executive Committee for election."

There are no other changes in that article.

Article V: No change.
Article VI: No change.
Article VII: No change.
Article VIII: No change.
Articles IX and X: No change.

The Committee recommends the adoption of this Constitution as it now is. There may be other amendments which someone would like to propose.

Chairman Richardson: I may say that since the impact of the effect of any changes in the Constitution might be a little more keenly felt by the State Board of Health and by some of us out in the field away from the center of things, this Constitution has been discussed with Dr. Reynolds, the health officer, and with Dr. Cooper, the assistant health officer, and they have authorized me to announce that it meets with their approval so far as the State Board of Health is concerned.

We want to have full consideration of this. Shall we have a motion on the adoption of the Constitution, or would you like to take it up section by section?

Dr. R. S. McGeachy (New Bern): I move the adoption of it as a whole.

Dr. N. T. Ennett (Greenville): I second the motion.

Chairman Richardson: You have heard the motion and the second. I would like to have full discussion because this is a considerable revision, and we want everybody to understand it.

Dr. R. E. Fox (Raleigh): In this preamble to the Constitution in the sentence which reads: "In order to carry forward and enlarge the services of the North Carolina Health Officers' Association, organized June 20, 1911", there is no reference to the fact that the name of the organization was later changed. Shouldn't there be inserted something to the effect, "and as amended April 24, 1922, to become the North Carolina Public Health Association"? It might be of historical interest a hundred years from now.

Chairman Richardson: Perhaps you would like to suggest that as an amendment to Dr. McGeachy's motion?

Dr. Fox: I would like to suggest that as an amendment to the preamble to the Constitution.

. . . The amendment was duly seconded.

Chairman Richardson: Dr. McGeachy, do you accept that amendment?

Dr. McGeachy: Yes.

The motion as amended was passed.

Chairman Richardson: We will now have the report of the Nominating Committee, Dr. Hamilton.

Dr. Hamilton: The Committee wishes to report the following nominations:

For President: Dr. John W. Williams.
For Vice-President: Dr. R. E. Rhyne.
For Secretary-Treasurer: Dr. John Anderson.

Chairman Richardson: You have heard the nominations. I believe it is permissible to have nominations from the floor. We will pause for a moment to see if there are any further nominations.

Dr. McGeachy: I move that the nominees be elected.

Dr. A. C. Bulla (Raleigh): I second the motion.

. . . The motion was carried.

Chairman Richardson: Is there any other business to come before us this afternoon?

Dr. N. T. Ennett (Greenville): Mr. Chairman, this is a little out of order, and perhaps no action at the moment is appropriate, but in view of the fact that we have a coordinating agency cooperating with the educational personnel of North Carolina, it seems to me that it would be well to invite them into membership in this organization. I presume they will be eligible now as associate members. Perhaps it might be proper to amend the section on active members to permit their membership. At least, it seems to be worthy of consideration.

Dr. Hamilton: Mr. President, I would like to move that the Secretary be instructed to make available to each member of the Association a revised copy of the Constitution and By-Laws.

Dr. Foster: I second the motion.

Chairman Richardson: All in favor of Dr. Hamilton's motion say "Aye"; all opposed, "No." It is carried, and the Secretary will take note.

I may say that I think the membership qualifications are sufficiently broad that there is no necessity to change them. They include not only health workers but those interested in public health.

We will ask Dr. Sisk, chairman of the Resolutions Committee, if he has a report.

Dr. Sisk: Mr. Chairman, the other members of the Committee haven't been available, so I am going to take the responsibility of offering the following resolution:

First, that we extend the thanks of this Association to Drs. Farrell, Washburn, and Milam, of the International Health Board, for their attendance and contribution to our program, and that through them we thank the International Health Board for the contributions they are making in the nutritional program, and in the promotion of public health work in North Carolina.

Second, that we extend the thanks of the Association to the management of the Carolina Hotel for entertainment.

Third, that we ask the Secretary to write to Dr. J. A. Morris and express the regrets of the Association of his inability to attend this meeting, and the hopes of the Association that he will be able to attend in the future. This is a recognition of the long service that Dr. Morris has given in the field of public health.

Chairman Richardson: You have heard the report of the Resolutions Committee. What is your pleasure?

Dr. Ennett: I move its adoption.

Dr. R. L. Carlton (Winston-Salem): I don't think this Association has ever gone on record as expressing in any way publicly its approval of the contribution which the Smith Reynolds fund is making to our program for venereal disease control in this state, and I think that it would be very appropriate if that would be included in the resolutions today.

Chairman Richardson: Dr. Sisk and Dr. Ennett, is that agreeable with you that we include that in the vote?

Dr. Sisk: Mr. Chairman, as far as I am concerned, I am very glad to accept that, but I think it is proper that we call on the other two members to find if they have any resolutions they wish to include.

Dr. Ennett: I will second what he said.

Dr. McPheeters: I am sure that this organization will not want to overlook the fact that Dr. Sumner, health officer of Buncombe County, has died since the last meeting of this Association.

Chairman Richardson: Dr. Sisk, does it meet with your approval to include a statement on Dr. Sumner?

Dr. Sisk agreed and the motion was carried.

Dr. T. O. Coppedge (Nashville): Mr. President, we had a very interesting and instructive paper read by Dr. Sisk this morning. Included in that paper were some recommendations which were full of common sense, and I am satisfied that many of the men here would be glad if they received some consideration. I would like to make a motion that the Chair appoint a committee to confer with the state epidemiologist, Dr. Knox, to see if those recommendations can be put into use.

Chairman Richardson: Is there a second to Dr. Coppedge's motion?

Dr. Williams: I second the motion.

. . . The motion was carried.

Chairman Richardson: I am going to leave to our President the task of appointing that committee.

Dr. McGeachy: Will the membership of all colored public health workers and others who are devoting their entire time to it be eligible to membership in this Association? I don't see why they shouldn't.

Chairman Richardson: There is nothing, Dr. McGeachy, said about color or race in the Constitution as I have seen it.

Is there any further matter to come before us? If there is no further business we stand adjourned until eight o'clock tonight.

. . . The meeting thereupon adjourned at four-fifty o'clock.

MONDAY EVENING SESSION

May 13, 1940

The meeting convened at eighty-forty o'clock, President Elliott presiding.

President Elliott: The meeting will please come to order.

Secretary Norton: While we are waiting for Dr. Large, who was expected to preside this evening, we will go right ahead and have the President's Address by Dr. Elliott.

President Elliott: Before I read the little I have, I want to take this opportunity to thank everyone who helped with our program all during the year, especially today. I thank all of those who appeared on the program, served on committees and helped in any way, and I especially want to thank our Secretary, Dr. Norton, for all of the work was left to him.

. . . President Elliott then presented his prepared address.

President Elliott: May I call on Doctor George Cooper to present the speaker of the evening?

Dr. Cooper then introduced Dr. Ben E. Washburn, who spoke on some phases of public health work in the Caribbean region.

President Elliott: Doctor Washburn, on the part of our organization, I want to thank you sincerely for that most interesting talk.

After Dr. Norton makes some announcements, the program will be turned over to Doctor Symington for entertainment.

. . . After announcements by Doctor Norton, the meeting adjourned at nine-forty o'clock for entertainment.

BOOK REVIEWS

A Textbook of Medicine (By American Authors): Edited by Russell L. Cecil, A.B., M.D., Sc.D. Professor of Clinical Medicine, Cornell University Medical College; Associate Attending Physician, New York and Bellevue Hospitals, New York City. Associate Editor for Diseases of the Nervous System; Foster Kennedy, M.D., F.R.S.E. Professor of Clinical Neurology, Cornell University Medical College; Attending Physician, New York Hospital; Visiting Physician in Charge, Neurological Service, Bellevue Hospital; Consulting Physician, New York Neurological Institute. Fifth Edition, Revised and Entirely Reset. 1744 pages with 173 illustrations. Philadelphia and London: W. B. Saunders Company, 1940. Cloth, $9.50.

That the cordial reception given the first edition of this textbook was well deserved is proved by the fact that it has gone through five revisions. The fifth edition, just off the press, is literally up to the minute in its contents. It is impossible, of course, to begin to review a book of this kind at length; and this textbook is now so well and so favorably known that, in the stereotyped formula, it needs no introduction to an audience of American doctors. It is of particular interest to North Carolina medical men to know that Dr. Frederic M. Hanes is one of the contributors. A number of other North Carolinians who are living in other states are also represented.

It is hard to see how the whole field of medicine could have been covered so thoroughly and so authoritatively, and how contributions from so many different authors could have been assembled within such a short space of time that all could be up to date. This book can be highly recommended as a textbook for students and as a postgraduate course for practitioners.

Gynecological and Obstetrical Pathology with Clinical and Endocrine Relations. Emil Novak, M.D., D.Sc., (Hon. Dublin), F.A.C.S., Associate in Gynecology, The Johns Hopkins Medical School; Gynecologist Secours and St. Agnes Hospitals, Baltimore. Pp. 496, with 427 illustrations. Philadelphia: W. B. Saunders Co.

This work should be widely welcomed, because it covers a subject which is extremely important, and one about which not much has been written. As the author states in his preface, he has made it sufficiently short to be of value to the busy practitioner and full enough to convey the present conception of what is known about the physiology and morbid anatomy of the subject to the student of research or the teacher.

The illustrations are clear and numerous, but the busy gynecologist would be grateful for more cuts showing the gross pathology, as this more often determines the final therapeutic procedures than does the microscopic pathology.

Because of the many changes in the normal structures involved in such a study, it is essential that these be well pointed out before the pathological changes can be thoroughly appreciated; for this reason this book is of necessity a voluminous work. It is hard to conceive of an improvement.

Neoplastic Diseases, A Treatise on Tumors. By James Ewing, M. D., Professor of Oncology at Cornell University Medical College, New York City; Consulting Pathologist, Memorial Hospital. Fourth Edition. Pp. 1160. Philadelphia and London: W. B. Saunders Company, 1940.

During the last decade notable additions have been made to the knowledge of neoplastic diseases. To keep up with these changes many sections of the book have been revised and some chapters have been completely rewritten. Considerable old material and references have been omitted, and discussions of debatable tumors and controversial reports have been shortened to make room for the new material. The book admirably fulfills its object of presenting the main features of the origin, structure and natural history of tumors. To those who are acquainted with previous editions this work needs no introduction.

New and Nonofficial Remedies, 1940, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1940. Cloth. Price, postpaid, $1.50. Pp. 656-LXVIII. Chicago: American Medical Associatiion, 1940.

Each year a revised list of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January first is published in book form under the title of "New and Nonofficial Remedies." The book contains the descriptions of acceptable proprietary substances and their preparations, proprietary mixtures if they have originality or other important qualities, important nonproprietary nonofficial articles, simple pharmaceutical preparations, and other articles which require retention in the book.

A list of articles and brands accepted by the Council, but not described, is included in the book to cover simple preparations or mixtures of official articles (U.S.P. or N.F.) marketed under descriptive, nonproprietary names for which only established claims are made. Diagnostic reagents which are not used in or on the human body, and protein diagnostic preparations are not included in **New and Nonofficial Remedies** unless the determination of the status of these products by the Council has been requested by the distributor: If such products are found to be marketed in accordance with the Council's rules, they may be included in the list of undescribed, but acceptable articles.

New and Nonofficial Remedies is a practical and condensed text of pharmacology and therapeutics; it contains scientifically elaborated standards for all accepted nonofficial drugs; its Index to Distributors is a list of manufacturers, a large number of whose products have met the Council's high standards; its Bibliographical Index is a storehouse of references to reports which have been made mainly on unaccepted and unacceptable drugs; its prefatory material contains the Council's "Rules," a time-tested and reliable set of basic principles for the furtherance of scientific and rational medicine.

A supplement to the annual volume of **New and Nonofficial Remedies** is published twice a year to bring up to date such current revisions and additions as have been necessary since its last publication. Every product included in the book is subject to the official rules of the Council. The comments to rules are changed occasionally by way of clarifying interpretation to insure fair consideration of all submitted preparations as new standards are recognized. Such constant and critical consideration of its contents provides the physician with a valuable reference list of acceptable new preparations on which to base his selection for use in treatment according to the established current practices of the profession.

The 1940 **New and Nonofficial Remedies,** of course, contains the revisions which appeared in the supplements for the 1939 edition, and continues the plan of grouping together articles having similar composition or action under a general discussion. These discussions have undergone considerable revision in the 1940 edition. Further revision of statements regarding the actions, uses, dosage, composition, purity, identity, strength or physical properties of many of the articles has also been necessary in some cases. Noteworthy revisions are those of the chapter on Liver and Stomach Preparations, radically rewritten and including a statement of requirements suggested by findings of the Anti-Anemia Preparations Advisory Board of the U. S. Pharmacopeia; the subsection Tuberculins, entirely rewritten to conform to newer knowledge in this field; and the chapter Allergenic Protein Preparations, the name of which has been changed to Allergenic Preparations. Minor but relatively important revisions are found in the articles: Bismuth Compounds, Serums and Vaccines, and Vitamins and Vitamin Preparations for Prophylactic and Therapeutic Use.

The indices of the new volume of **New and Nonofficial Remedies** are of the same order and plan as in previous editions. A general index lists accepted articles, including those not described. This is followed by an index to distributors in which appear all the Council accepted articles listed under their respectiive manufacturers. Finally, a bibliographical index is added for listing proprietary and unofficial articles not included in N.N.R. This includes references to the Council publications concerning each such article as has appeared in **The Journal of the A.M.A.,** Reports of the Council on Pharmacy and Chemistry, Propaganda for Reform, Vol. 1 and 2, or Reports of the A.M.A. Chemical Laboratory.

Shock, Blood Studies as a Guide to Therapy. By John Scudder, M.D. From the Surgical Pathology Laboratory of the College of Physicians and Surgeons, Columbia University, and the Department of Surgery, Presbyterian Hospital, New York City. Price $5.50. Pp. 315. Philadelphia: J. B. Lippincott Co.

This widely heralded book has turned out to be somewhat disappointing. It is written in a brief and rather sketchy style, and too frequently the reader is referred to the literature for the illustration of various points. Undue importance is laid on an increase of potassium in the blood in shock, and the treatment recommended by the author is reduction of potassium by the injection of intravenous saline and the administration of adrenal cortical extract. The work of Moon and his collaborators is almost completely ignored, as is the whole vicious circle of shock—capillary atony, with the resulting dilatation of the vessels, increased capillary permeability, stasis of the blood, passage of fluid out of the blood into the tissue spaces, concentration of the blood, and finally death from insufficient circulating blood volume.

It is probable that the second edition will be a very different book.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1939 with the Comments That Have Appeared in **The Journal**. Cloth. Price, $1. Pp. 205, with 5 illustrations. Chicago: American Medical Association, 1940.

Only seven of the thirty-five reports listed in this annual collected report are of the familiar "Not Acceptable" or condemnatory type. Two reports announce omission of products from N.N.R., one being off the market. The remainder, far superior in bulk as well as in number, are concerned with educational and constructive considerations. This trend has been noticeable in recent years; it reflects the great predominance of the constructive over what may be called the destructive side of the Council's work of promoting rational therapeutics.

The educational reports touch three fields on which lie the front lines of present day therapeutics progress—chemotherapeutics, endocrines and vitamins. Two reports on sulfapyridine deal with the status and Council acceptance of commercial brands. The report on Neoprontosil recognizes that term as the Winthrop Chemical Company's proprietary name for 4-sulfonamide benzene-2-azo-1-hydroxy-7-acetylamino naphthalene-3:6-disodium sulfonate, and azosulfamide as the nonproprietary name for the same substance. The articles on Dilantin Sodium, Sobisminol Mass and Sobisminol Solution are status reports which accompanied the descriptions of accepted brands, a type of article increasingly used by the Council. Dilantin sodium is the new drug used in the treatment of epilepsy and has been accepted by the Council with carefully stated limitations for its use; sobisminol mass and sobisminol solution are new soluble bismuth preparations for use in the treatment of syphilis; they are noteworthy in that sobisminol mass has been shown to be effective when used orally. The reports on racephedrine and nikethamide deal with nomenclature; these terms are recognized as nonproprietary names for racemic ephedrine (the sulfate and hydrochloride are also recognized) and pyridine-8-carboxylic acid diethylamide respectively; the latter was introduced into medicine under the proprietary name Coramine-Ciba and was the subject of a preliminary report by the Council in 1929 (**The Journal**, June 1, 1929, p. 1837).

The status report on questions concerning vitamins compiled by the Cooperative Committee on Vitamins of the Councils on Pharmacy and Chemistry and on Foods is becoming an almost annual event, awaited for the revisions of the "Allowable Claims" found acceptable for the various vitamins. This year's revisions are not extensive but the report is noteworthy for the reemphasis of the Council's stand on the subject of vitamins and vitamin mixtures. Alas, the Council's is but one clear, authoritative voice of rationality in today's whirlwind of polyvitamin and polyvitamin-mineral absurdities foisted on the gullible public by astute and sophisticated advertising technic. The preliminary and supplementary reports by Snell and by Snell and Butt on the new principle for active hemorrhagic diathesis known as "vitamin K" are timely and noteworthy.

The leadership of the Council in matters of endocrine therapeutics and nomenclature is well sustained by such reports as Chorionic Gonadotropin, Assay Standards for Chorionic Gonadotropin, Stilbestrol and the Present Status of Testosterone Propionate: Three Brands, Perandren, Oreton and Neo-Hombreol Not Acceptable for N.N.R. No brand of any of these has been accepted and these reports are excellent justification of the Council's intelligent and well informed conservatism in this as in other matters. (J.A.M.A., 115:154, July, 1940).

Pure Luteinizing Hormone Isolated From Anterior Pituitary Glands

The isolation in pure form of the luteinizing (interstitial cell-stimulating) hormone of the anterior lobe of the pituitary gland of swine was announced in the August 23rd issue of **Science** by Drs. Shedlovsky and Rothen of the Rockefeller Institute for Medical Research, New York, and by Drs. Greep, Van Dyke and Chow of the Squibb Institute for Medical Research, New Brunswick, N. J. The achievement is specially noteworthy because the chemical nature of the endocrine principles of the anterior pituitary gland renders them difficult to isolate and analyze since they are proteins or complex polypeptides which are extraordinarily vulnerable to most types of ordinary chemical manipulation.

Proof of the purity of the luteinizing hormone was established by solubility studies in various buffer solutions, by obtaining electrophoretic patterns employing a Tiselius apparatus and by observations of the sedimentation rates in the ultracentrifuge. From the data thus obtained and from the determination of the diffusion constant, the molecular weight of the pure luteinizing hormone was estimated to be approximately 90,000. Its isoelectric point was found to be at pH 7.45.

Chemical analysis of one specimen of pure hormone showed it to have the following composition: carbon, 49.37 per cent; hydrogen, 6.83 per cent; nitrogen, 14.93 per cent; ash, 0.93 per cent.

Tests of the pure hormone in hypophysectomized twenty-one day old male rats showed that one microgram of hormone nitrogen (6.7 micrograms of hormone) caused a significant increase in the fresh weight of the anterior lobe of the prostate; double this quantity produced an increase in testicular weight. In hypophysectomized, immature female rats, the hormone maintained the interstitial cells. If, however, the pure luteinizing hormone was administered after follicle-growth had been stimulated by follicle-stimulating hormone, it caused the formation of corpora lutea perhaps preceded by ovulation.

The significance of this announcement to workers in endocrinology is that it contributes to the elimination of much of the pre-existing confusion with regard to the possible number and effects of the gonadotropic hormones which have been postulated by earlier investigators. In an earlier paper the Squibb Institute workers announced the separation in **nearly pure form** of not only a luteinizing (interstitial cell-stimulating) hormone but also a follicle stimulating (gametogenic) hormone from the anterior pituitary gland. It may be assumed that by using the newest tools for physical chemical investigation which were so helpful in the isolation in pure form of one of the anterior pituitary gonadotropic hormones that the other will likewise be obtained as a pure protein.

Thus far it has not been possible to isolate large enough quantities of these pure hormones for clinical studies. This is obviously the next step as soon as satisfactory yields can be obtained. At any rate it seems to have been clearly demonstrated that two gonadotropic hormones can be isolated from the anterior pituitary gland. They are separate chemical entities and act on different structures within the primary sex gland (ovary or testis).